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ABSTRACT

To increase media utilization in Wisconsin's vocational-technical education districts, a study was made to determine factors that impede or enhance the use of media and a program was set up to implement the study findings. Following a literature review and surveys of educators, an inservice workshop was developed to teach applications of instructional technology in vocational-technical education and to motivate teachers to use the technology. Attitudes of participants before and after the workshop were tested, with more positive attitudes being evidenced after the workshop. As a result of the media utilization survey and the instructional technology inservice workshop, it was concluded that; (1) the existing audiovisual service programs in the Wisconsin vocational-technical system have been successful in acquainting teachers with the more common types of media but have not developed teacher competence in planning the optimum use of instructional media, and (2) inservice teacher training can be used successfully on the vocational-technical school level in Wisconsin, and the attitude of teachers toward instructional technology can be improved through inservice workshops. Forms used in the study project, data collected from the survey, and other materials are appended. (MF)

Final Report

Project No. 19-019-151-222-B

PROJECT TO DETERMINE THE USE OF MEDIA RESOURCES IN VOCATIONAL - TECHNICAL AND ADULT EDUCATION

August, 1972

WISCONSIN BOARD OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
Madison, Wisconsin

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PROJECT TO DETERMINE THE USE OF MEDIA RESOURCES IN VOCATIONAL - TECHNICAL AND ADULT EDUCATION

David H. Igl

Center for Vocational, Technical and Adult Education
University of Wisconsin - Stout

Menomonie, Wisconsin

August, 1972

The research reported herein was performed pursuant to a grant or contract with the Wisconsin Board of Vocational, Technical and Adult Education, partially reimbursed from an allocation of Federal funds from the U. S. Office of Education, U. S. Department of Health Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official State Board or U. S. Office of Education position or policy.

Table of Contents

LIST OF TABLES

Acknowledgments

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Chapter I

SUMMARY

Statement of Problem

Increasing enrollment in educational institutions, as well as an ever intensifying trend toward individualizing instruction is rapidly changing the role of the teacher from that of a dispenser of facts to a manager of instruction. One aspect of this new role is the need to increase the use of media in classroom instruction. Unfortunately many educators, among them teachers in vocational, technical and adult education, have been reluctant to implement media into their courses.

Existing in-service programs in this area have dealt with cognitive and psychomotor domains because they have been insufficient in motivating the use of media, consideration needs to be given to the identification and treatment of those factors which influence teacher attitude toward the use of media.

Purpose of the Study

The purpose of this study involved determining factors which enhance and impede the use of media in the vocational-technical school and the construction, implementation and testing of a program to put these findings into action.

Method of Study

The method of study used for this study was a review of literature, the construction and use of a survey instrument to determine the factors influencing media utilization in the Wisconsin VTAE system, the development and testing of an in-service program based on the results of the survey, and the recommendation of administrative procedures which would enhance the use of instructional media in Wisconsin VTAE District 12.

Findings

The identification of factors which enhance and impede the use of media in the vocational-technical school. Information gathered in this study infers that, in the Wisconsin VTAE system, the use of instructional media is enhanced because of the following factors:

1. The quantity, location, and standardization of hardware which works when teachers need it.

2. The quantity and appropriateness of available software.

3. The assistance rendered by the audio-visual staff in fitting media into courses.

4. The appropriateness of existing facilities for media utilization.

5. The decentralization of audio-visual software.

The procedures for borrowing or renting software not owned by the district was the only negative influence which was common to three or more of the districts surveyed. Although this appears to indicate the lack of factors impeding the use of media in the VTAE system, closer analysis of the data shows that negative factors exist but are usually confined to specific districts.

The factors listed above seem to indicate that the job being done by facilities planners in providing teachers with equipment and facilities is sufficient. A further indication is that an ample supply of appropriate software is available for most areas. The assistance rendered by existing audio-visual personnel in helping teachers fit media into their courses is an additional factor which signifies a job well done. Where practiced, decentralization of software adds another positive dimension to the utilization of media. To maintain and enhance existing activities supporting media utilization the above factors should be continued and improved upon.

The only factor which was reviewed as inhibiting media utilization in a majority of the districts surveyed, procedures for borrowing and renting software not owned by the district, may reflect the need for reducing red tape. If not within the jurisdiction of the VTAE system, a possible solution is that of buying frequently used software as opposed to renting.

Other measures of factors influencing the use of media which were drawn from the media utilization survey included teacher acquaintance and proficiency with respect to specific types of media. In both cases the current status of teachers surveyed appeared acceptable, with the high acquaintance and proficiency being indicated for more common media types diminishing for recent innovations. This is to be expected because of the lack of the presence of many of the newer types of media such as computer instruction in the VTAE system.

Sixty to eighty percent of the teachers in the districts surveyed would like additional instruction in planning their instruction to better use media. This factor, for which the response was the greatest in magnitude of any in the survey, was most influential in determining workshop content.

The construction of an in-service program to teach specific applications of instructional technology in the vocational-technical school and motivate teachers to use it. Based on the results of the survey, an in-service workshop was developed to accomplish the following objectives:

Workshop Objectives:

Instructors involved in this workshop will develop the competency to:

1. Select a portion of their course to be taught with instructional media, identify the possible media with types to be used and support this choice on the basis of a systems approach to Instructional Technology.

   1.1 Be able to tell how other teachers have successfully implemented mediated instruction in their courses.

   1.2 Be able to name the characteristics inherent in each type of media available in their schools.

   1.3 Be able to verbally describe a systems approach to instructional decision making and use this approach in making choices in instructional design.

2. Design a management strategy network including major goals, checkpoints and expected completion dates of those activities necessary for implementing the desired changes in their courses.

3. Identify members of the Instructional Services staff who can assist in planning for, procuring, and producing instructional materials and be able to work with those staff as a team in pursuit of the goal of improving instruction.

   3.1 Be able to name the positions in the Instructional Service staff and describe the basic competencies possessed by the person in that position.

   3.2 Be able to describe the necessary procedures for obtaining help from members of the Instructional Services staff and how the observance of these procedures relates to the overall goal of improving instruction.

   3.3 Be able to communicate Instructional Media ideas to members of the Instructional Media staff so that end products will serve the purposes originally intended.

There is some question as to whether or not the above objectives actually reflect specific applications of instructional technology in the vocational technical school. While the objectives reflect a desire to have workshop participants apply instructional technology to their situations, a number of workshop participants complained about the resulting lack of specific content. This factor was further aggravated by the large number and diversity inherent in the group attending the workshop. Feedback from workshop participants indicated a desire for more one to one work with consultants in the application of instructional technology to solve their instructional problems. This aspect was greatly supported by the Workshop Critique which rated presentations given by

personnel from within the district (dealing with immediate problems and providing for interaction both among teachers and between the teachers and the instructional service staff) a great deal higher than those given by outsiders. Participants also expressed a desire for shorter workshops which covered specific content.

The testing of the in-service workshop in terms of attitude on the part of participants before and after participating in the program. Information regarding changes in attitude as a result of the in-service program was gathered by means of a pre-post validation questionnaire consisting of a nine item semantic differential. For each item responses on the post workshop survey reflected a positive attitude toward instructional technology. Five of the items, which indicated a positive attitude at the beginning of the workshop showed only a slightly greater positive rating on the post test. Data provided by the Validation Questionnaire tends to indicate that the workshop was successful in developing a more positive attitude toward instructional technology on the part of workshop participants.

INTRODUCTION

Numerous in-service training programs are implemented every year which attempt to improve the quality of education by upgrading teacher competency in production and use of audio-visual material. While extensive treatment has been given in these programs to cognitive and psychomotor domains little has been done regarding the modification of teacher behavior in the affective realm.

Statement of Problem

Increasing enrollment in educational institutions, as well as an ever intensifying trend toward individualizing instruction is rapidly changing the role of the teacher from that of a dispenser of facts to a manager of instruction. One aspect of this new role is the need to increase the use of media in classroom instruction. Unfortunately many educators, among them teachers in vocational, technical and adult education, have been reluctant to implement media into their courses.

Existing in-service programs in this area have dealt with cognitive and psychomotor domains. Because they have been insufficient in motivating the use of media, consideration needs to be given to the identification of those factors which influence teacher attitude toward the use of media.

Purpose of the Study

The purpose of this study involved determining factors which enhance and impede the use of media in the vocational-technical school

and the construction, implementation and testing of a program to put these findings into action. This involved four major dimensions:

1. The identification of factors which enhance and impede the use of media in the vocational-technical school.

2. The construction of an in-service program to teach specific applications of, and to motivate teachers to utilize instructional technology in the vocational-technical school.

3. The testing of the above program in terms of attitude toward instructional technology on the part of the participants before and after participating in the program.

4. The recommendation of corrective measures to the cooperating institution for those areas which could not be covered in the workshop.

Method of Study

The method of study used for this study was a review of literature, the construction and use of a survey instrument to determine the factors influencing media utilization in the Wisconsin VTAE system, the development and testing of an in-service program based on the results of the survey, and the recommendation of administrative procedures which would enhance the use of instructional media in Wisconsin VTAE District 12.

A media utilization survey designed to measure the current status of media with respect to (1) teacher acquaintance, utilization, and interest in studying with respect to specific types of media, (2) factors which influence media use, and (3) teacher planning and preparation of media was drafted and critiqued by a jury of nine educators on the Vocational District, University and State Office levels. On a basis of their criticism the survey was revised and distributed.

Data from the survey instrument were drawn from four of the VTAE districts in Wisconsin, including District 12 where a workshop based on survey results was tested. Recommendations were made to District 12 regarding media utilization factors which were a function of administrative action.

Background of the Study

The Fox Valley Technical Institute (Wisconsin VTAE District 12) is currently developing a student-paced program of instruction which would allow students to enter at any time and proceed with their vocational technical training at their own pace. This program poses two major problems for the teaching staff at Fox Valley. First, because the time factor makes the vocational-technical courses more accessible, the administration predicts that enrollment will increase. Second,

individualization will mean that not all students will be at the same point in the curriculum at any given time.

The two major functions of instructional media which have been outlined by the National Education Association's Division of Audio-Visual Instructional Service (Ebel, 1969) indicate a partial solution to these problems. Function number one places media as a supplement to the teacher to increase his classroom effectiveness. The second function places the burden of instruction on media alone. This would improve overall productivity by having instructional media systems replace the teacher for routine presentation of instructional material.

With this in mind, it appears that one way of helping the instructional staff overcome the two problems outlined above would be to increase their utilization of instructional media. This can be accomplished by identifying ways in which instructional media can be used in vocational-technical education and illustrating these applications to teachers through an in-service program. Along with this exposure to applications of instructional media, teachers would be given training which would aid them in working with the audio-visual staff on the development of media for their classes.

The cognitive and psychomotor abilities described above would be of little use if teachers are not motivated to use instructional media in their classrooms. Discussion with administrators from the Fox Valley Technical Institute identified this problem as most acute and of very high priority. For this reason the study identified reasons why teachers may be reluctant to implement instructional media into their courses, and attempted to overcome these problems during the in-service program.

The information forming the basis for this study was drawn from a sample of four of the VTAE districts in Wisconsin. Being drawn from this base, the materials developed and tested in this study should, with minor modifications, be utilizable on an in-service basis in most vocational-technical schools in the state and should aid in improving the quality of vocational-technical education.

Assumptions and Limitations

One basic assumption upon which this project was predicated was that an increase in use of instructional media on the part of vocational educators would improve the quality of their instruction.

This study makes no attempt to ascertain student preferences in regard to whether or not media should be used or which media would work best for any particular subject.

Definition of Terms

Clarification of certain terms in is order to insure complete communication of the concepts presented in this paper. Following is a

list of such terms:

Instructional technology, media technology, and educational technology: the integration of all components of instruction (hardware, software, personnel, and procedures) into a systematic design for the accomplishment of an education goal. These three terms will be used interchangeably in this document.

Media: any device, hardware, software, or method of human interaction used to convey information or modify student behavior.

Systems Approach: methodology of planning by which all instructional components are logically arranged and integrated to accomplish a specific educational goal.

REVIEW OF LITERATURE

The improvement of instruction through the increased use of media has been the essence of a number of studies in recent years. Despite the fact that grades and educational disciplines covered by the various studies varied, examination of them will be done with reference to the problem at hand.

Basis for the design of this study was drawn from the work of Monahan and Miller (ERIC Document No. ED 045 611) who stated that the chief requirement of an in-service program was to improve teaching skills and update techniques. They also said that pre-inservice research, although not concerned with control of variable or statistical error, should establish a valid basis for the purposes and objectives of the in-service program, while post-workshop evaluation should be performance based (Monahan and Miller, ERIC). Ream (1966) maintains that evaluation should be an integral part of the plans of every in-service program.

Godfrey (1967), in examining the state of media technology for the years 1961-66, reported that the type of school and subject taught were critical variables in the use of media for teaching. This study showed that primary school teachers used a wider variety of materials and used them more often than secondary school teachers despite the fact that secondary teachers had more equipment available.

Finch and Curtis (1970) reported that in vocational education the use of resources correlated positively and significantly with resource availability. They went on to say that faculty attitudes toward instructional resources may be governed by their involvement in resource preparation, selection, presentation and application. For the purpose of this study the above findings prove complimentary to Monahan and Miller's recommendations that the activities of in-service programs should involve people (Monahan and Miller, ERIC).

Teacher Attitude Toward Use of Resources

Several studies have explored the relationship between teacher attitude and resource use. These studies have explored such aspects as hardware availability, job security, financial considerations, and teaching experience.

In studying several variables which may relate to teacher attitudes toward the use of audio-visual materials, Kelly (1960) reported a significant relationship between teacher's general attitudes toward media and use. This would seem to indicate that the improvement of teacher attitude would encourage greater utilization of instructional media in the classroom. Kelly also found significant relationships between use and hardware availability. With this in mind it appears that a further method of increasing media use is to make hardware more available through increased quantity and better distribution. According to Kelly's study no relationship was established between attitude and years of experience, subject taught, or financial allocation for the media program. This would indicate that increased utilization is possible regardless of the type of teachers one is dealing with or the financial status of the school system.

One possible source for adverse attitude toward instructional media was studied by Tobias (1968) who gave evidence that the threat of automation was a discouraging factor stemming from fears on the part of the teachers that media would replace them. This evidence reflects a lack of knowledge on the part of teachers regarding their role in a mediated curriculum. Teachers who hold this fear fail to see that they are an integral part of the instructional system and are necessary for designing, selecting, and utilizing the media as well as acting as the crucial human interaction link in the instructional process.

Existing In-Service Programs Dealing with Audio-Visual Instruction

A number of programs have been developed with the goal of increasing the proficiency of vocational, technical and adult education in the use of audio-visual aids. McCormic (ERIC) developed a series of information sheets covering a wide variety of instructional materials to be used first in large group presentations and then in small lab groups. The Department of Industrial Education at the University of Texas (1960) developed an in-service program covering the following topics: posters; wall charts; how we learn; mock-ups; printed materials; motion pictures filmstrips with and without sound; opaque projector; chalkboards and slides. Dale (ERIC) developed a packaged program designed to enable teachers to carry on this in-service audio-visual education.

These programs have proven very effective in providing teachers with training in the production of software as well as the use of hardware such as 16mm projectors, tape recorders, slide and filmstrip projectors, and video-tape equipment. They have not attempted to influence teacher

attitudes regarding the use of media, nor have they dealt with the planning of instruction in order to better utilize media.

The Instructional Technology Concept of Media Utilization

The above programs are evidence of the great availability of "hands-on" workshops dealing with A-V hardware and software. However, by concentrating on hardware and software existing programs have limited the scope of potentiality for instructional technology. Price (1971) maintains that educational technology represents much more than hardware and software which is added in addendum to the instructional process. This concept is complimentary to Snider's statement that instructional technology should be an integral part of education. (Snider). The concept is carried one step further by Bright (1968) who maintains that instructional technology is an approach or theory of instruction which may or may not involve hardware.

With the establishment of instructional technology as a systems approach to instruction, analysis of traditional audio-visual in-service programs shows need for development of in-service to compliment existing programs in an effort to develop teachers' competency in the total instructional technology approach. A program of this nature developed and validated by Ziener (1970) for use with science teachers and science supervisors provided both materials and methodology for the in-service education of teachers in the area of instructional technology. A systematic model for the in-service training of classroom teachers was developed by Price (1971), but was not piloted beyond a jury review.

Implementation of the instructional technology system as a basis for establishing, designing, implementing, and testing of an in-service program may prove to be an asset to the quality of vocational, technical and adult education in the state of Wisconsin.

Chapter II

METHODOLOGY

This chapter provides a general description of the procedures undertaken toward the solution of the problems outlined by this study. Because the study involved three major stages, between which there was considerable overlap, detailed explanations of many of the specific procedures used will be reserved for ensuing chapters of this document.

ORGANIZATION OF THE STUDY

To insure complete coverage of the problem, the study was conducted in three major stages. These stages, which reflect the design followed by most instructional systems, involved the aspects of research, planning, implementing, and quality control. They were as follows:

I. The development and utilization of a survey instrument to measure:

   A. The status of media in the vocational school with respect to instructor acquaintance, utilization, and interest in studying.

   B. Factors which influence the use of media and to what degree these factors encourage or discourage utilization.

   C. The status of teachers with regard to planning and preparing for use of media.

II. The development of an in-service workshop to develop a more positive attitude toward educational technology.

III. Testing the Effectiveness of the workshop.

Collection and analysis of the data was necessary (1) to provide information regarding the existing status of media utilization in the Wisconsin VTAE System and identify the determining factors thereof as a basis for the development of the workshop; and (2) to provide a measure of workshop effectiveness. This data was gathered through the use of three instruments:

1. The Media Utilization Survey (Appendix A)

2. The Pre- and Post-Workshop Validation Questionnaire (Appendix B)

3. The Workshop Critique (Appendix C)

The Media Utilization Survey and the Workshop Critique were developed as part of this study while the Validation Questionnaire was chosen from the evaluation instruments used by the Educational Technology Project (Ziener, 1970).

PROCEDURES FOLLOWED

Development and Utilization of Survey

As a basis for development of the survey and succeeding project work the literature was reviewed and educators in eight of Wisconsin's VTAE districts were interviewed. This provided a list of possible factors which may influence the utilization of media as well as a historical base and repertoire of currently available programs in instructional technology. From this base a preliminary instrument was drafted and critically analyzed by a jury composed of the following:

A. One person well versed in statistics and research design (Ph.D.)

B. One person well versed in audio-visual communications (Ph.D.)

C. Two persons from the Wisconsin State Board of Vocational, Technical and Adult Education (Educational degrees not known)

D. A total of five persons from each of the districts to be surveyed (Educational degrees and positions varied, however, most of these persons were associated with instructional services and possessed a Master's or better.)

Based on the suggestions of the above jury, the survey was revised, duplicated, and distributed to four of Wisconsin's eighteen vocational-technical districts. These districts were chosen on a basis of degree of sophistication of existing audio-visual services as reported in the Wisconsin VTAE Media Council Survey of Educational Media and Its Use, Spring, 1971. The districts surveyed were selected to include representative samples of low, medium, and high sophistication districts. Those selected were as follows:

A. District 12, Fox Valley Technical Institute

B. District 3, Fennimore

C. District 6, Kenosha

D. District 16, Rhinelander

In District 12, the institution in which the in-service was to be tested, the entire faculty received the total instrument (Appendix A, Number 1). In the remaining districts the faculty was randomly divided

into two groups, each member receiving an instrument composed of half of the items of the initial survey which was split on an odd-even basis (Appendix A, No. 2 and 3). This was done to reduce the amount of time needed for any single person to complete the survey.

Results of the surveys were tabulated and analyzed to obtain an overview of the status of Wisconsin VTAE Faculty with respect to instructional technology; forming both a basis for design of the workshop and a point of reference from which administrators could make relevant decisions. This was accomplished through the use of frequency distributions and the Q statistic.

The Development of an In-Service Workshop to Develop a More Positive Attitude Toward Educational Technology

Guided by the system designed by Price (1971) and following the recommendation of Monahan and Miller (ERIC) that workshop purposes and objectives have a valid base, the workshop was developed in three stages. Stage one involved the determination and analysis of the factors which influence media utilization in the VTAE System and was accomplished primarily through the media utilization survey developed and implemented in phase one of this study. Stage two used the results of stage one as a basis for specification of workshop objectives. In stage three workshop content and process was determined in order to achieve the objectives specified in stage two.

Determination and analysis of the factors which influence media utilization. Determination of factors was accomplished primarily through the use of the media utilization survey developed and implemented in phase one of this study. The survey served to provide an indication of the status of Wisconsin VTAE faculty with respect to acquaintance, existing proficiency, and interest in studying with respect to specific media types. The survey also provided data for analysis for the factors which influence media use in the VTAE system. A third type of data gathered by the instrument provided a measure of the current status of teachers regarding planning and preparation of media.

Data gathered by the media utilization survey was used to determine significant factors influencing the use of media in the Wisconsin VTAE system. The factors were further analyzed with respect to their relationship to recent literature and existing programs in instructional technology. This analysis provided a basis for the specification of workshop objectives (Stage 2). A detailed account of the analysis of factors influencing media use can be found in Chapter 3. Application of these findings as well as considerations regarding recent literature and existing inservice programs as they affected the workshop developed by this study may be found in Chapter 4.

The specification of workshop objectives based on the results of Stage one. With media utilization factors identified and analyzed it

was relatively simple to specify workshop objectives. General workshop objectives were developed. These objectives were then reviewed and refined by two members of the instructional services staff at the cooperating institution. The revised objectives together with supportive objectives served as determinants of the workshop content and process. Chapter 4 gives a list of the workshop objectives and presents the basis from which they were developed.

The selection and development and process to achieve workshop objectives. With objectives specified human and media resources were assembled to achieve the specified goals. Human resources included the workshop director, faculty and staff from the cooperating district, and a consultant who was well versed in the systems approach to instructional technology. Because no monies were budgeted for consultants, his expenses and fees were born by the cooperating institution as previously arranged.

The adequacy of suitable media resources which could be borrowed from the University of Wisconsin - Stout, coupled with the fact that the cooperating district picked up the cost of media production for the presentations made by their staff resulted in a relatively small expenditure for locally prepared media. However, a rather extensive preview of materials not available for free preview was done.

The media utilization workshop developed by this study was used with a group of 50 teachers who were hired to work on summer curriculum projects at the cooperating district. Pre-post and post workshop data was collected to provide a measure of workshop success.

Testing the Effectiveness of the Workshop

Four basic measures were used to assess the effectiveness of the workshop. They were

1. The criterion test from the programmed text. (See Appendix D).
2. Completed systems flow charts.
3. Pre-and post-in-service attitude survey.
4. Workshop critique.

Items one and two are criterion referenced with the only requirement being that the products be logical and serve the needs of the workshop participants. For this reason these materials were not analyzed beyond the extent of determining if they were done and seemed logical for the stated intent.

Item three (Appendix B) was an attitude survey taken from the evaluative instrument used by the Educational Technology Project. This

survey was administered as a pre- and post-workshop measure. Verbal permission to use this survey and to reproduce it in this document has been granted by the Educational Technology Project Administrator.

Item four (Appendix C) was a post-workshop measure in which participants had the opportunity to evaluate the content and process of each element of the workshop, as well as offer comments. Coupled with this was a series of suggestions for improvement of the workshop which was drafted by small groups, each person being assigned to a group.

SUMMARY

This chapter has presented an overview of the procedures used in the three major stages of this study: (1) the development and utilization of the Media Utilization Survey Instrument, (2) the development of an in-service workshop based on the instrument, and (3) the testing of workshop effectiveness. For purposes of clarity specific procedural details and the complex relationships between the major stages will be discussed in the following two chapters.

Chapter III

FINDINGS OF MEDIA UTILIZATION SURVEY

The media utilization survey (Appendix A) developed and administered during this study gathered data to measure (1) the status of media in the vocational school with respect to instructor acquaintance, utilization, and interest in studying, (2) factors which influence the use of media and to what degree these factors encourage or discourage utilization, and (3) the status of teachers with regard to planning and preparing for use of media.

The teachers in the cooperating district, District 12, received the entire survey as shown in Appendix A. In the remaining districts Sections I and II of the survey were divided on an odd-even basis and randomly distributed with one-half the faculty receiving respective condensed survey forms which were color coded green and blue. This was done to minimize the time required to complete the form and thereby insure a higher return. A complete report of data collected by district may be found in Appendix E. Response return for the four districts were (1) VTAE District 3--68.3%, (2) VTAE District 6--54.5%, (3) VTAE District 12--86%, and (4) VTAE District 16--40%.

ACQUAINTANCE, UTILIZATION AND INTEREST IN STUDYING

The first part of the survey dealt with acquaintance, utilization and interest in studying specific types of media. Respondents were given a list of media and were asked to (1) check those with which they were familiar, (2) rate their use of each, and (3) rate their interest in studying each. Results will be reported under three headings: (1) acquaintance, (2) utilization, and (3) interest in studying.

Acquaintance

Respondents were given a list of media and were asked to indicate whether or not they were acquainted with the media on a yes-no basis. Acquaintance will be reported by percent of acquaintance with respect to media types. Table I shows the percent of respondents for each district that indicated familiarity with the stated media types. Percent listed will have the following meanings:

76-100%	75% or greater of the respondents were acquainted with the media listed
51-75%	51% to 75% of the respondents were acquainted with the media listed

TABLE I

Percent of Respondents That Indicated Familiarity
With Stated Types of Media

Media	Districts											
	12			3			6			16		
	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%
1. Overhead transparencies			X			X			X			X
2. Filmstrips			X			X			X			X
3. 2" x 2" slides			X			X			X		X	
4. 8mm or super 8mm film			X		X				X			X
5. 16mm sound film			X			X			X		X	
6. Recorded disc (records)			X			X			X			X
7. Audio-tape recording (Cassettes or reel to reel)			X		X				X			X

TABLE I (continued)

Media	Districts											
	12			3			6			16		
	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%
8. Video-tape recording (Television)		X		X					X		X	
9. Slide tape series		X			X			X			X	
10. Sound-filmstrips series (filmstrips & sudio-tape or record)			X			X			X		X	
11. Multi-media presentations (3 or more)	X				X		X			X		
12. Auto-tutorial systems (teaching machines or A-T labs)		X		X				X		X		
13. Computer assisted Instruction	X			X			X			X		

TABLE I (continued)

Media	Districts											
	12			3			6			16		
	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%
14. Printed texts			X			X			X			X
15. Periodical publications			X			X			X		X	
16. Reference books			X			X						X
17. Microfilm or microfiche (microforms)	X			X				X			X	
18. Repair manuals, job sheets lists of procedures			X			X		X				X
19. Programmed or packaged instruction manuals			X			X			X		X	
20. Magnetic Board		X			X			X			X	

TABLE I (continued)

Media	Districts											
	12			3			6			16		
	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%
21. Electric Board	X			X			X			X		
22. Felt or flannel board		X			X				X		X	
23. Displays			X			X			X		X	
24. Still pictures (opaque projection, bulletin boards, dry-mounted materials)			X			X			X			
25. Models or mock-ups (not including "real-life" equipment)		X			X			X		X		
26. Actual equipment and/or materials used in the field			X			X			X			X

TABLE I (continued)

Media	Districts											
	12			3			6			16		
	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%	0-50%	51-75%	76-100%
27. Learning games		X		X				X			X	
28. Simulation exercises		X			X			X			X	
29. Specimen (need not be scientific)	X			X				X		X		
30. Film catalogs			X			X		X				X
31. Card Catalog			X		X			X			X	
32. Periodical Index			X	X				X				X
33. ERIC	X				X		X					X

0-50% Less than 50% of the respondents were acquainted with the media listed.

Summary--District 12 Media Acquaintance. Survey responses indicated that teachers at District 12 were acquainted with a wide variety of media. Traditional forms of media (films, filmstrips, tapes, texts) showed higher degrees of acquaintance while more recent forms (computer, multi-media, microforms) showed a lower degree of acquaintance. A greater number of respondents indicated acquaintance with simple forms of media than more complex forms such as computer assisted instruction or multimedia. This may be a function of the media types that are available in the district as well as other past experiences of respondents.

Because a primary function of this survey was to determine content for the development of the workshop, the following conclusions were drawn in this respect: Respondents seemed to have a rather high degree of acquaintance with the media forms currently available at their school. Since the level of media acquaintance was substantially high, inclusion of instruction to introduce new media seemed undesirable for the proposed workshop. Conversely, most of the media forms which respondents were least acquainted with were not presently available at District 12, resulting in a certain air of impracticality. Although awareness on the part of teachers toward new technological developments is necessary before these innovative changes can be introduced into a school, the decision was made to exclude treatment of specific media types from the in-service program.

Since the in-service program developed by this study was to be both comprehensive and practical, the information derived from the acquaintance section of the survey, instead of pointing out media types to include in the workshop, served rather to indicate that the entry level of participants was sufficient that inclusion of exercises to acquaint them with media types was not necessary.

Summary--District 3 Media Acquaintance. The level of media acquaintance from District 3, which was selected to characterize a developing district with a relatively unsophisticated formal audio-visual program, was similar to that of the cooperating institution. A high degree of acquaintance was evident in the more common media types while newer or more specialized developments were less familiar. In this respect it may be concluded that teachers in young and developing VTAE districts may have similar entry level characteristics to those of the teachers in the institution in which the program developed by this project was piloted.

Summary--District 6 Media Acquaintance. District 6, which was selected to represent a well established institution with a fairly sophisticated media program showed a higher level of acquaintance than other districts surveyed but followed true to form in that the greatest familiarity was with tradicional media types with respondents showing less acquaintance with newer developments. It would appear that the entry level of teaching from this type of a district would be higher than average.

Summary--District 16 Media Acquaintance. District 16, which represents neither extreme in age or sophistication of media services produced approximately the same levels of media acquaintance with traditional forms of media and a lack of familiarity with newer innovations.

Summary--Media Acquaintance. Four Wisconsin VTAE districts were surveyed so as to obtain a representative sample of high, normal and low degrees of sophistication with respect to existing media services. Responses indicated that faculties at all of the districts surveyed had similar levels of acquaintance, with the highest degree of acquaintance for more common traditional media types and a low degree of acquaintance for newer, more complex forms of media. A possible exception to this pattern existed in the district which was selected to represent institutions with a highly sophisticated media program. Although this district followed the form of greater acquaintance with common media types and less with newer developments, a greater frequency of acquaintance was noted thereby diminishing the number of media types for which there was low acquaintance. From this one may conclude that institutions which presently have a highly sophisticated media program will have faculties with a higher workshop entry level with respect to media acquaintance with institutions with an average or emerging media program.

Utilization

Data on pre-workshop levels of utilization was primarily gathered as a basis for future study regarding the effectiveness of the workshop. With research funding scheduled to terminate June 30, 1972, it was impossible to utilize this information as an effective measure of workshop value on a pre-post basis because of the fact that not all classes were in session in the summer. For this reason analyzing this data will not be included in this report for any of the districts surveyed beyond the presentation of a Q analysis which may be found in Appendix E. It should be noted that this data was gathered only as a service to those who may wish to do a follow-up survey on this project. Such persons may feel free to use this data as pre-assessment data. Interested persons may also wish to use this information toward the formulation of an overview of media utilization in the Wisconsin VTAE System. However, because this type of delineation is not specified in the objectives for this project, no further analysis of the utilization data will be made at this point.

Interest in Studying

This section of the survey was designed to measure (1) the existing proficiency of the respondents with respect to specific types of media and (2) the interest in studying each type of media by the respondents. Respondents were asked to indicate their interest in studying a given

media as 1 (none) to 5 (high) or 6 (already proficient). In reporting this section of the survey, analysis will first be done of proficiency and of the interest in studying.

Existing Proficiency

Levels of existing proficiency will be reported in terms of the percent of the respondents at each district that indicated proficiency in the specific media types listed on the survey. Table II illustrates the percent of respondents in each district who indicated that they were proficient in the types of media listed at the time of the survey. Because no more than 50% of the respondents in any district indicated proficiency in any particular type of media, Table II ranges from 0 to 50 percent. Data in Table II will be reported as follows:

41-50% Forty-one to fifty percent of the respondents in the respective districts felt they were proficient in the types of media checked.

31-40% Thirty-one to forty percent of the respondents in the respective districts felt they were proficient in the use of the types of media checked.

21-30% Twenty-one to thirty percent of the respondents from the respective districts felt they were proficient in the use of the types of media checked.

11-20% Eleven to twenty percent of the respondents from the respective districts felt they were proficient in the use of the following types of media:

0-10% Ten percent or less of the respondents from the respective districts indicated proficiency in the following types of media:

Data collected from the portion of the survey which indicated existing proficiency served to compliment and reinforce that gathered in the media acquaintance portion. It was found in most cases that lowest levels of proficiency existed for newer, more complex media types. These newer, more complex types of media included such items as video-tape recording which was in the zero to tenth percentile in three of the four districts surveyed, auto-tutorial system which was in the zero to tenth percentile in three of the four districts surveyed, and multi-media presentation and computer assisted instruction which were in the zero to tenth percentile in all of the districts surveyed. Because two of the items mentioned, auto-tutorial systems and computer assisted instruction, have their best application in specific areas it seems undesirable to include them in an in-service program which is intended to be generalizable to a number of teachers in a variety of disciplines. The remaining items, video-tape recording and multi-media presentations, have applications in a number of disciplines and should be considered for inclusion in an in-service program

TABLE II

Levels of Existing Proficiency with Respect to Media Types

Media	District 12					District 3					District 6					District 16				
	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%
1. Overhead transparencies				X					X					X						X
2. Filmstrips				X					X				X						X	
3. 2" x 2" slides			X					X					X						X	
4. 8mm or super 8mm film		X				X						X							X	
5. 16mm sound film			X						X						X				X	
6. Recorded disc (records)			X					X					X						X	
7. Audio-tape recording (cassets or reel to reel)			X						X					X					X	
8. Video-tape recording (television)	X					X					X							X		
9. Slide tape series		X						X				X						X		

TABLE II (continued)

Media	District 12					District 3					District 6					District 16				
	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%
10. Sound-filmstrips series (filmstrips and audio-tape or record		X					X						X							X
11. Multi-media presentations (3 or more)	X					X					X						X			
12. Auto-tutorial systems (teaching machines or A-T labs)	X						X				X						X			
13. Computer assisted instruction	X					X					X						X			
14. Printed texts				X			X					X						X		
15. Periodical Publications				X			X						X					X		
16. Reference books				X				X				X							X	
17. Microfilm or microfiche (microforms)	X						X				X							X		

TABLE II (continued)

Media	District 12					District 3					District 6					District 16				
	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%
18. Repair manuals, job sheets, lists or procedures				X			X					X					X			
19. Programmed or packaged instruction manuals		X						Y				X					X			
20. Magnetic Board	X						X				X					X				
21. Electric Board	X					X					X						X			
22. Felt or flannel board		X					X				X					X				
23. Displays			X				X						X			X				
24. Still pictures (opaque projection, bulletin boards, dry-mounted materials)			X					X					X				X			
25. Models or mock-ups (not including "real-life" equipment)		X					X						X					X		

TABLE II (continued)

Media	District 12					District 3					District 6					District 16				
	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%	0-10%	11-20%	21-30%	31-40%	41-50%
26. Actual equipment and/or materials used in the field				X				X				X							X	
27. Learning games	X					X						X					X			
28. Simulation exercises		X				X						X					X			
29. Specimen (need not be scientific)		X					X					X						X		
30. Film catalogs			X				X					X							X	
31. Card catalog				X				X					X						X	
32. Periodical Index				X			X						X				X			
33. ERIC	X					X						X					X			

that is intended to be generalizable. They were not, however, included in the workshop developed by this study because the other factors which determined workshop content weighted the decision against them.

A further indication drawn from this section of the survey is that the levels of proficiency for each of the media types are relatively constant between districts. Because the districts surveyed were representative of high, medium, and low sophistication of media service programs, it appears that this factor is not significant in determining teacher programs in the more sophisticated districts have provided teacher in-service in the production and use of audio-visual materials, it follows that an element may exist which contributes to the teachers concept of their proficiency other than making software and running machines.

Levels of interest in studying. The second part of the interest in studying portion of the survey attempted to identify media types for which there was high interest in studying over all of the districts surveyed. Because the study was concerned only in identifying high interest items this section of the report will consider only those items for which a frequency of greater than 50% of the respondents indicated moderate to high interest. They types of media for which there was moderate to high interest in studying are listed together with their respective percentages in Table III.

FACTORS WHICH INFLUENCE MEDIA USE

Section two of the survey was designed to determine the factors which had influence on the use of media. It also served as a measure of to what degree these factors encouraged or inhibited media use. Because a central focus of this study involved the attitudinal aspect of media utilization this section of the survey was of great importance. Results from this portion of the survey served as the major basis for the recommendations for administrative action outlined in chapter five of this document.

Data Collected in Section Two of Survey

The section of the survey designed to measure factors which influence media use consisted of a list of possible factors covering such areas as availability, dependability, quantity, and standardization. Each factor was followed by a list of five response choices. Respondents received the following instructions:

> Please circle the number which most closely describes your feelings toward the following aspects of media services in your district as they relate to your use of media. Responses mean the following:
>
> 1. GI - Is a major reason for not using media.
>
> 2. I - Inhibits the use of media, but is not a major problem.

TABLE III

MEDIA FOR WHICH GREATER THAN FIFTY PERCENT OF THE RESPONDENTS INDICATED MODERATE TO HIGH INTEREST IN STUDYING

District 12

8mm or Super 8mm film	59%
Audio tape recording	57%
Video-tape recording	71%
Slide-tape series	51%
Multi-media presentations	56%
Auto-tutorial systems	50%
Microforms	56%
Programmed or packaged instruction	60%

District 3

Video-tape recording	65%
Multi-media presentations	60%
Actual equipment and/or materials used in field	54%
Learning games	60%
Simulation exercises	50%

District 6

Video-tape recording	53%
Computer-assisted instruction	72%
Actual equipment and/or materials used in field	50%
Simulation exercises	52%

District 16

Video-tape recording	63%
Computer-assisted instruction	59%
Printed texts	50%
Actual equipment and/or materials used in field	50%
Simulation exercises	63%

3. NI - Has no influence on the use of media.

4. E - Encourages the use of media, but is not a major influence.

5. GE - Greately encourages the use of media.

A complete copy of the survey instrument may be found in Appendix A.

Tables IV, V, VI, and VII illustrate the direction and degree to which the respondents in each of the districts felt that the factors listed influenced the use of media. The tables provide a Q analysis of the data gathered in this section of the survey. The actual response frequencies as well as the median and numeric value of the interquartile range may be found in Appendix E.

Analysis of the Factors Which Influence Media Use

Because this study was concerned with identifying factors which were common to a majority of districts, only those factors which were rated as having either a positive or a negative influence in at least three of the four districts surveyed will be examined. Consideration will first be given to those factors which were thought of as having a positive influence and then to those having a negative influence. The factors not included in the following lists either had no influence or had a balance between a positive influence in some districts and a negative influence in others.

Positive influence factors. The following factors were viewed by respondents in at least three of the four districts surveyed as having a positive influence on encouraging media utilization:

Equipment working when you need to use it.

Amount of software available for your courses.

Decentralization of software.

Assistance received from audio-visual staff in fitting media into your courses.

The appropriateness of available media to your class and students.

The appropriateness of classrooms, labs and shops for using media.

The amount of hardware available.

The location of hardware

Standardization of equipment.

TABLE IV

FACTORS WHICH INFLUENCE MEDIA USE IN DISTRICT 12

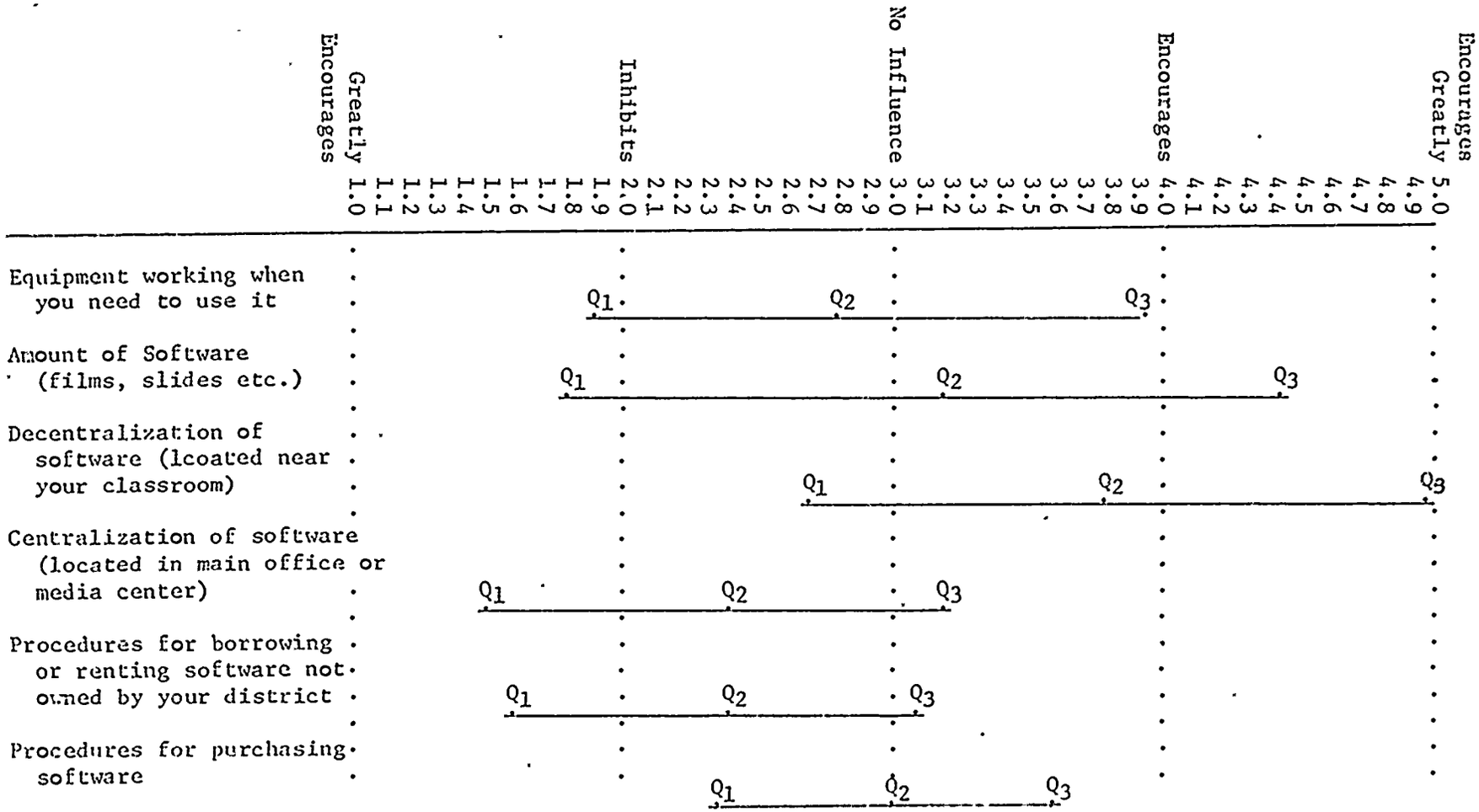


TABLE IV (continued)

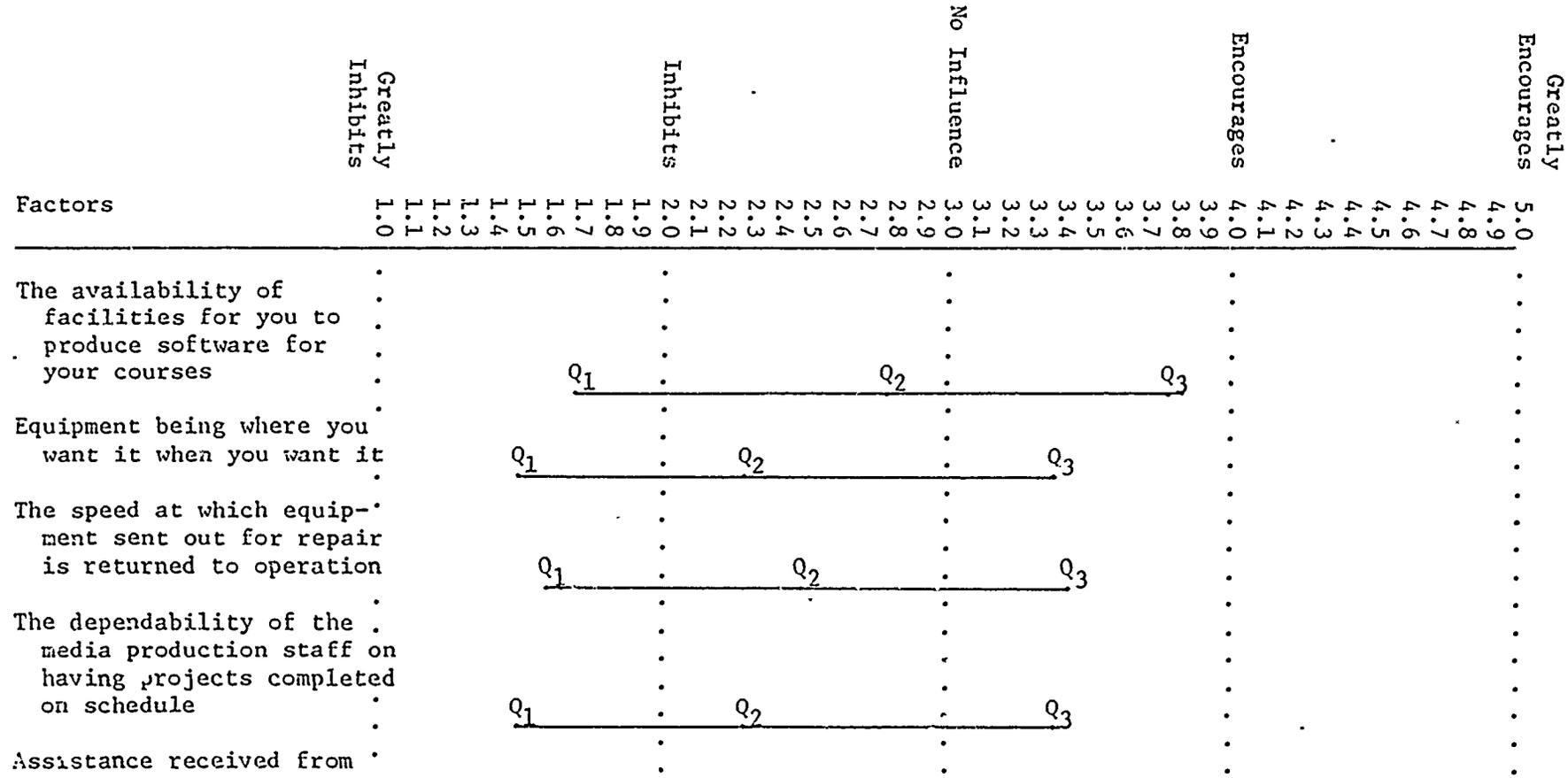


TABLE IV (continued)

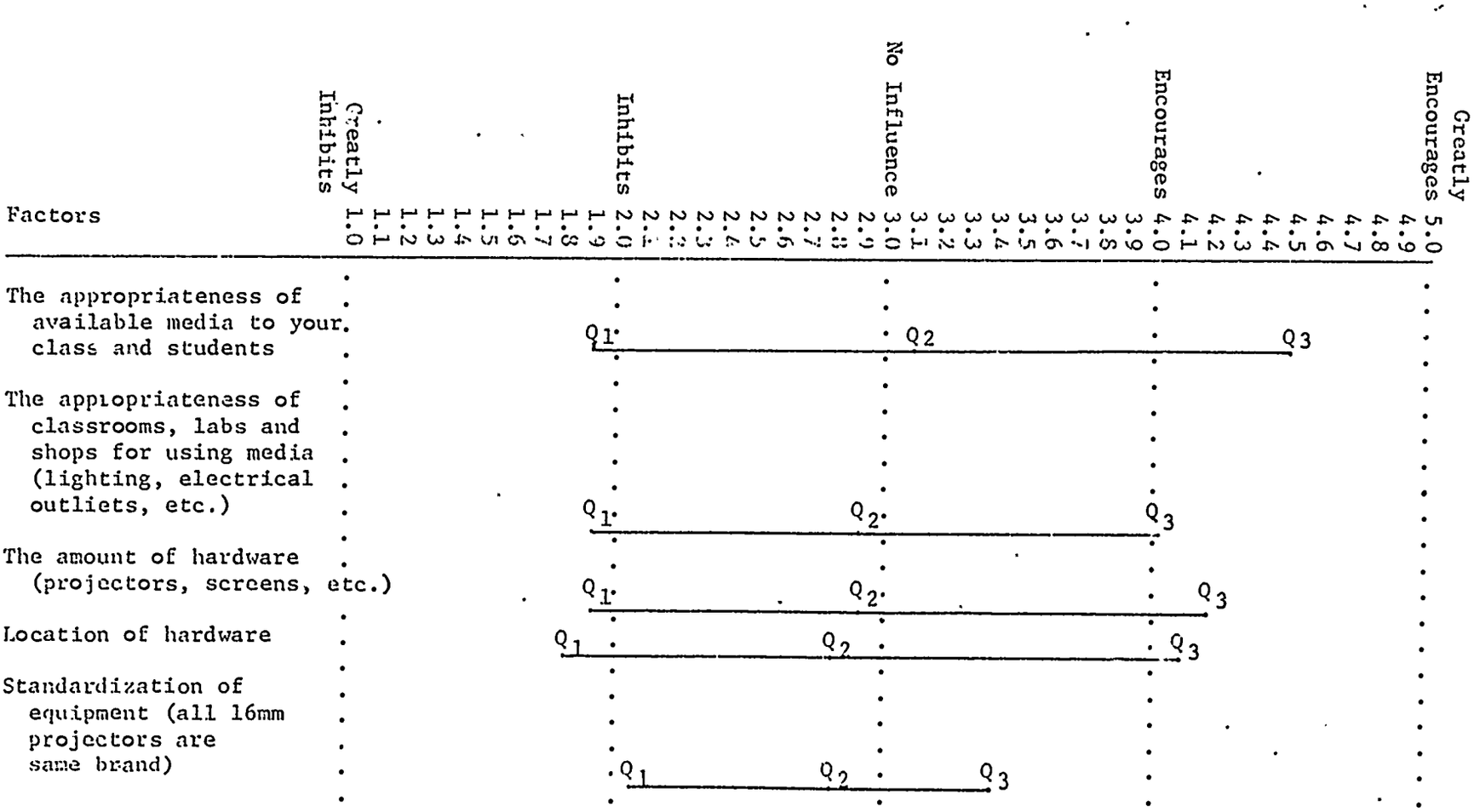


TABLE V

FACTORS WHICH INFLUENCE MEDIA USE IN DISTRICT 3

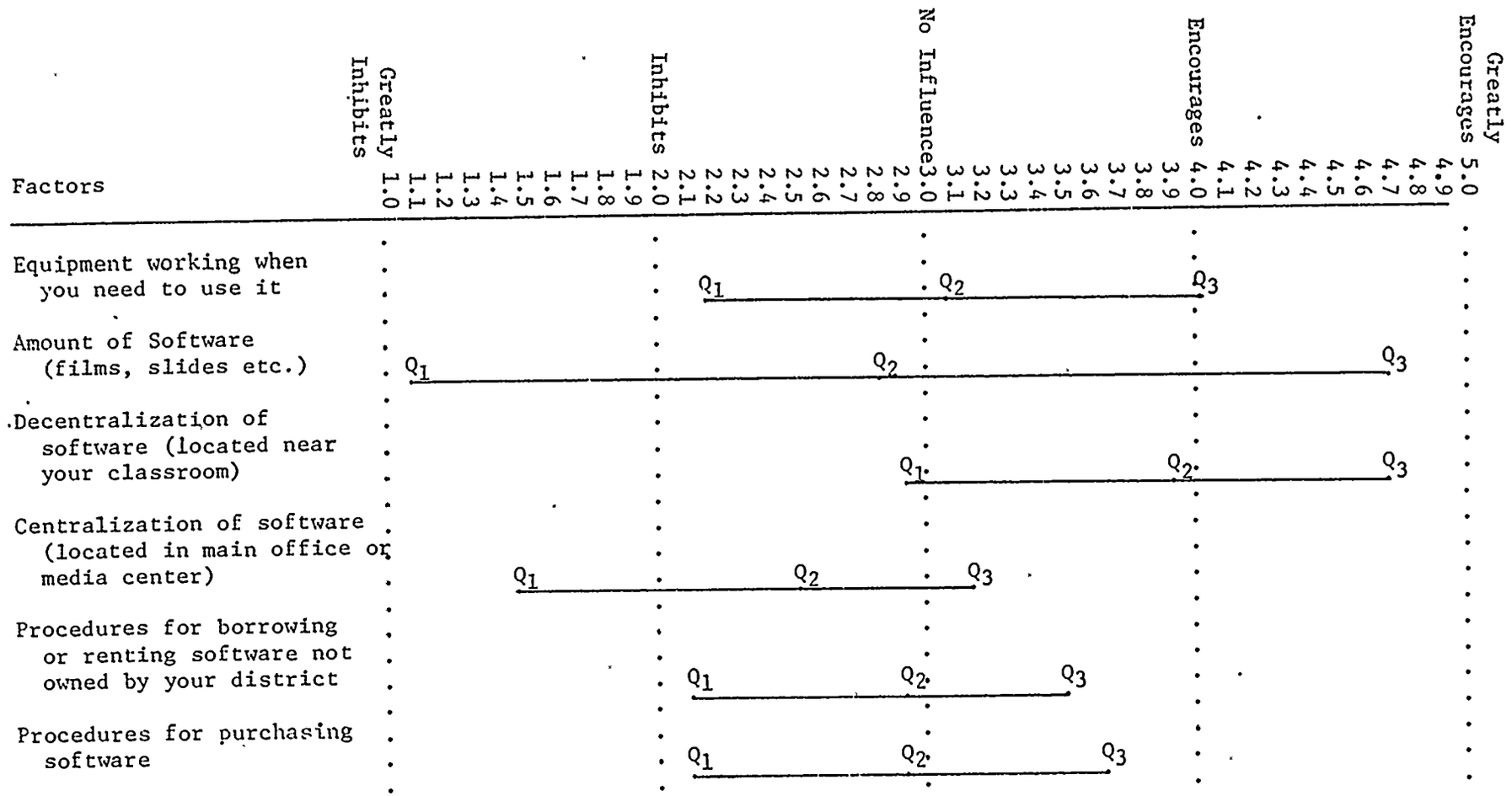


TABLE V (continued)

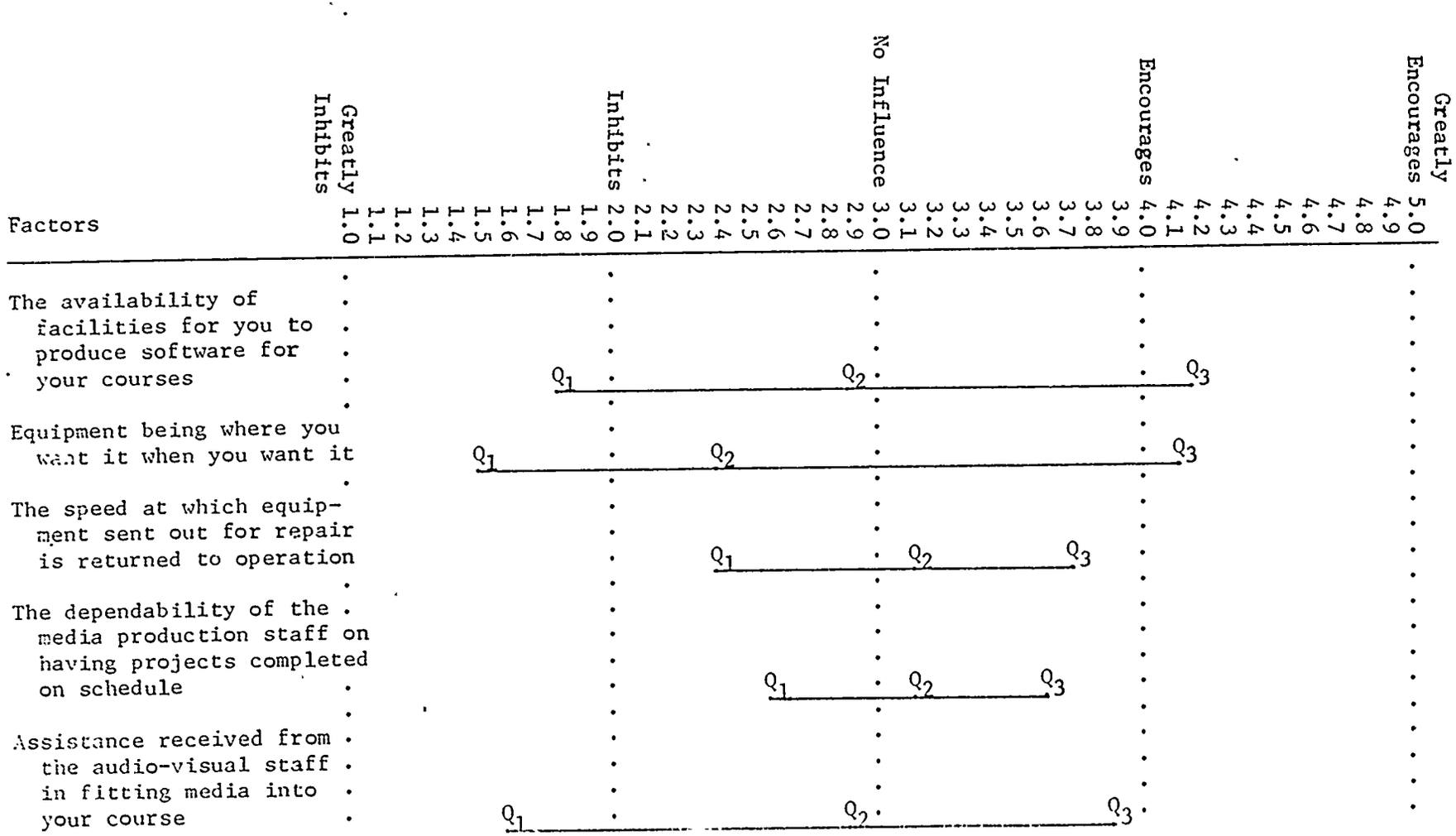


TABLE V (continued)

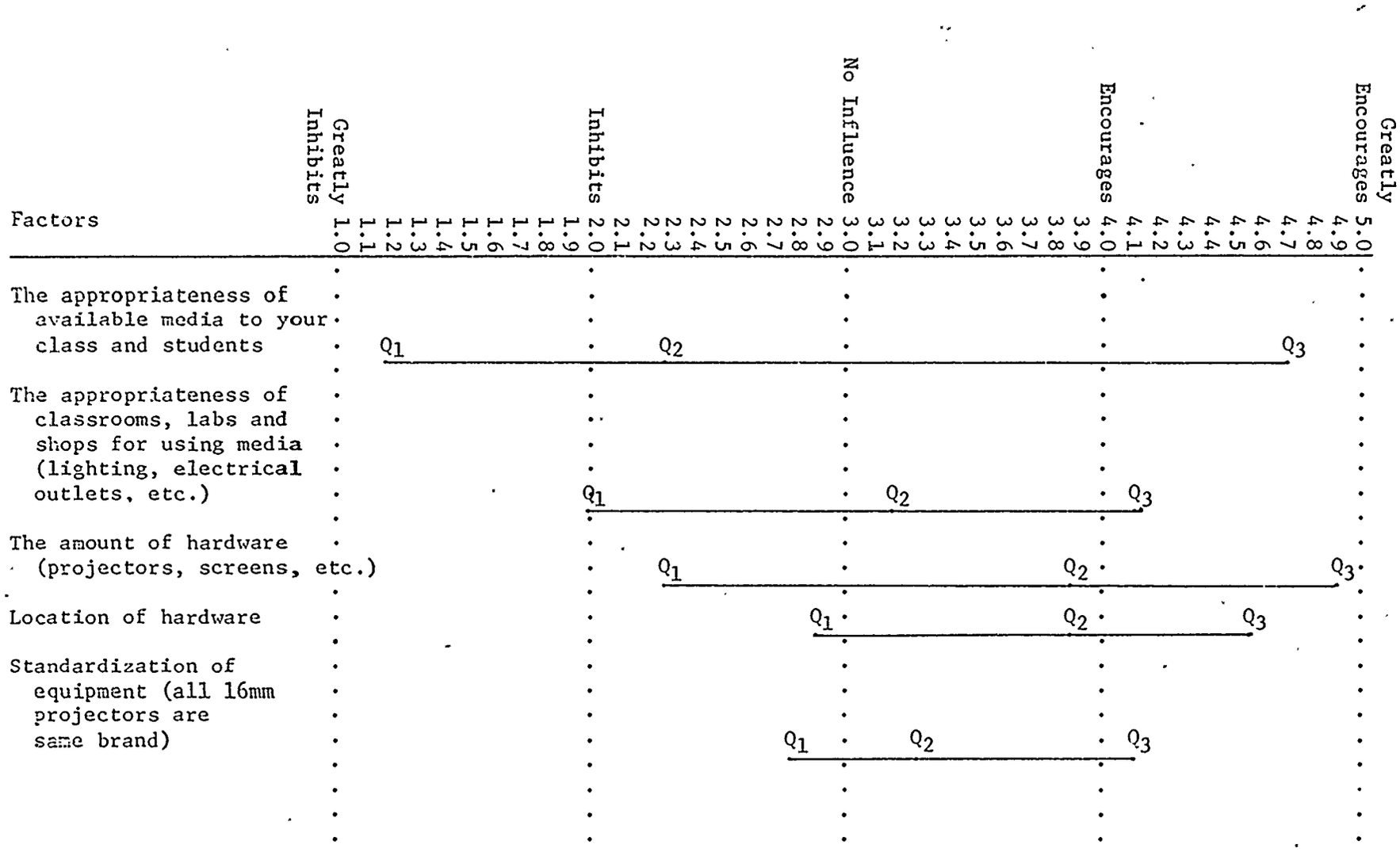


TABLE VI

FACTORS WHICH INFLUENCE MEDIA USE IN DISTRICT 6

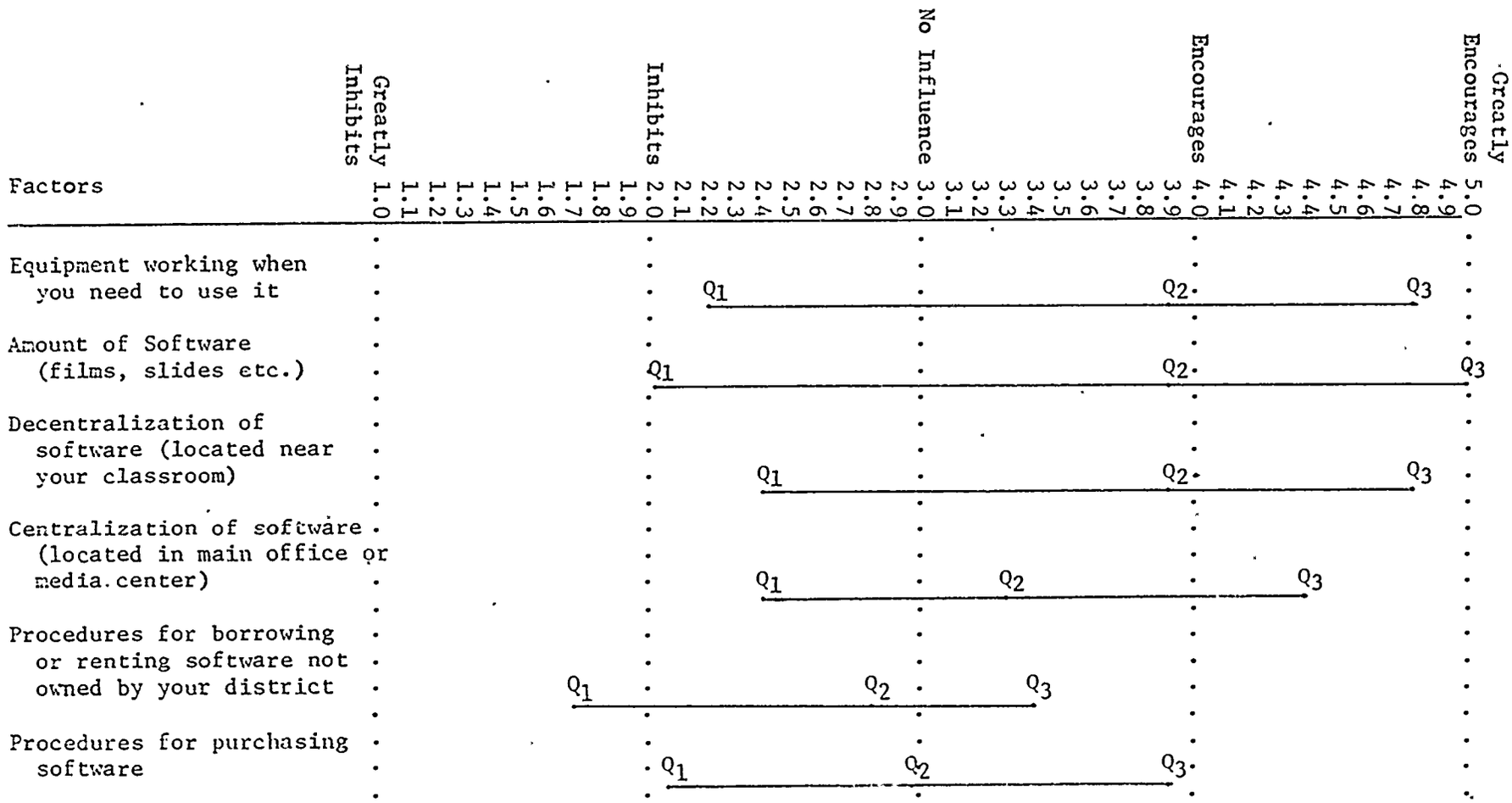


TABLE VI (continued)

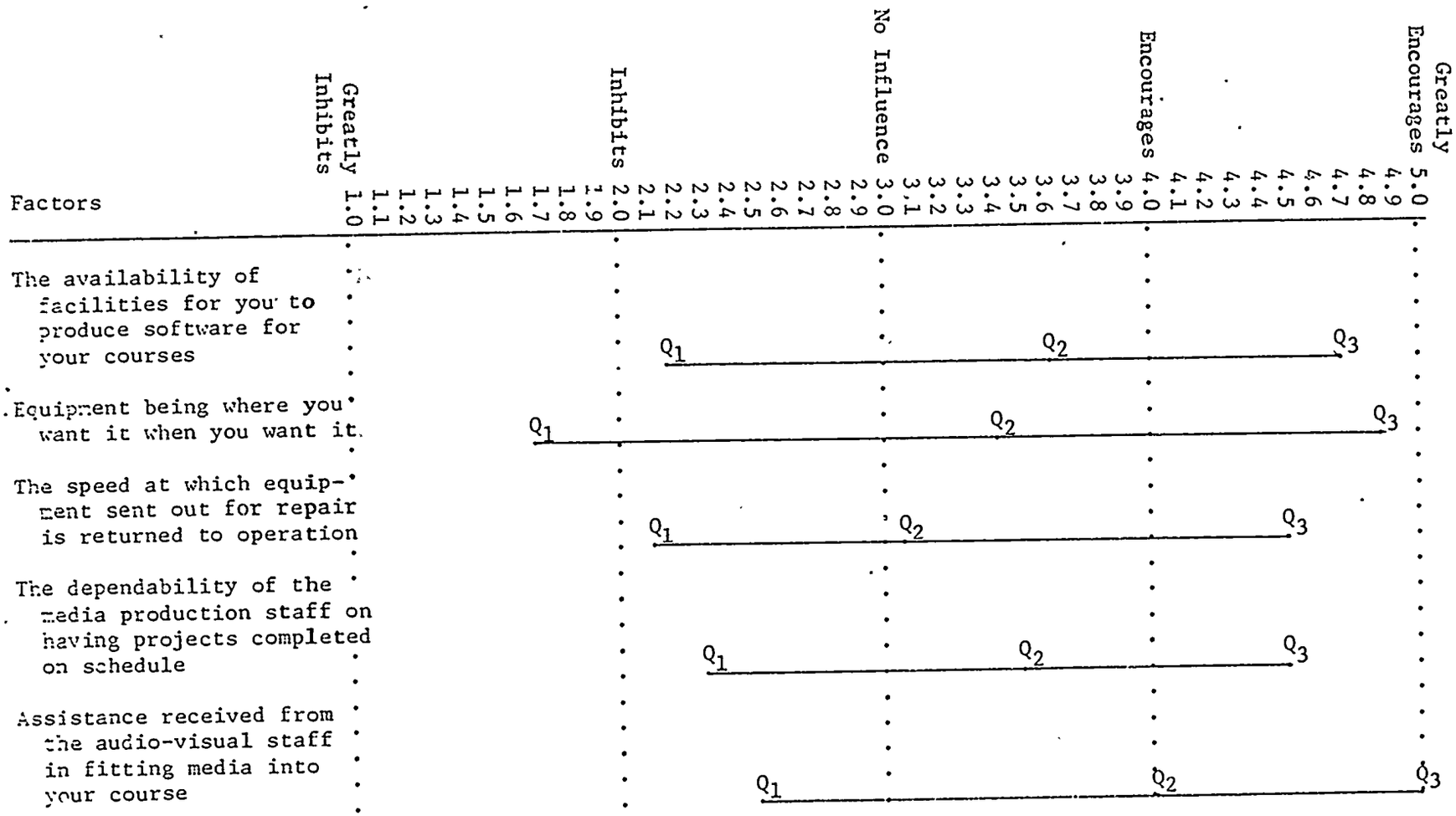


TABLE VI (continued)

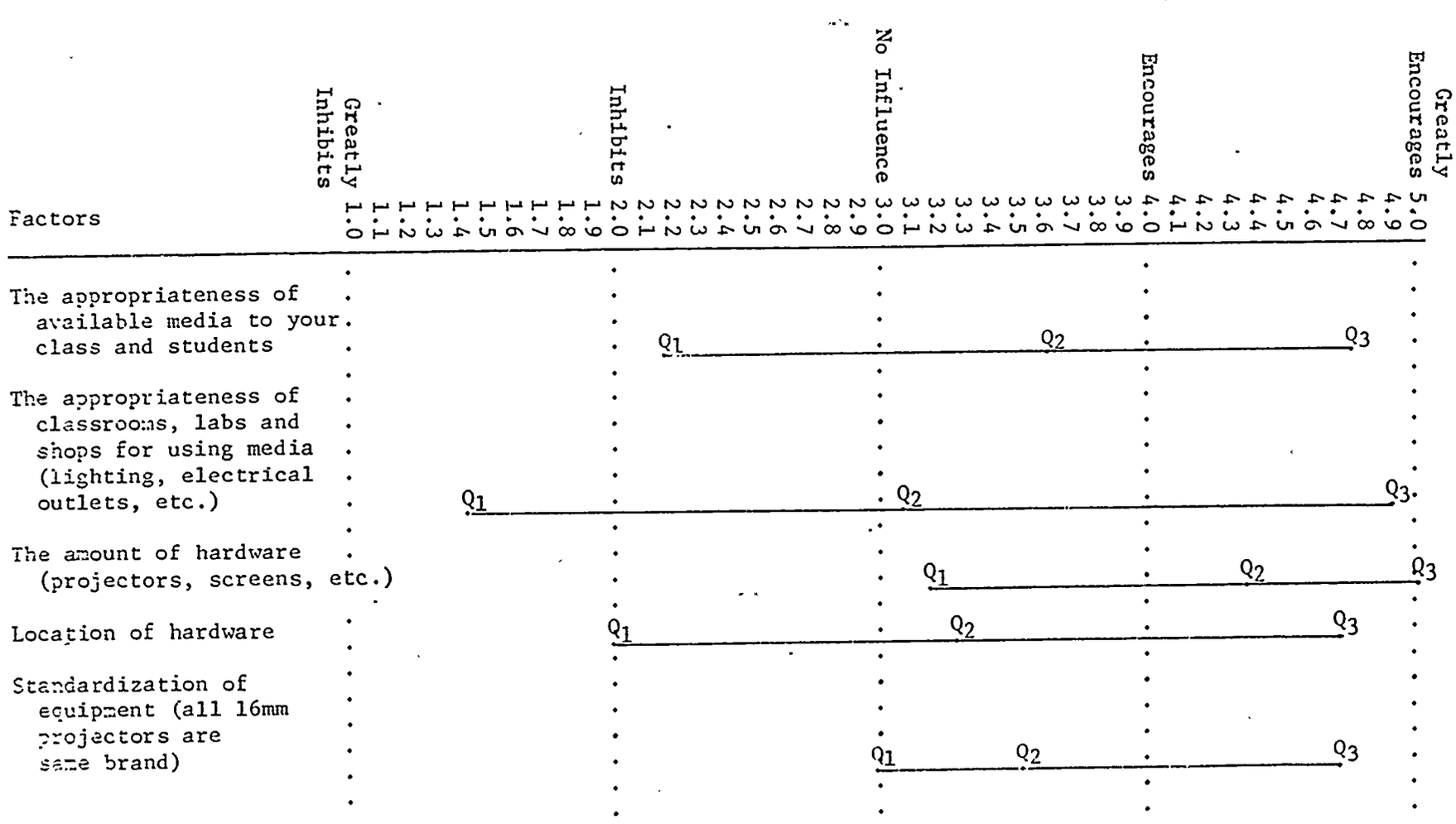


TABLE VII

FACTORS WHICH INFLUENCE MEDIA USE IN DISTRICT 16

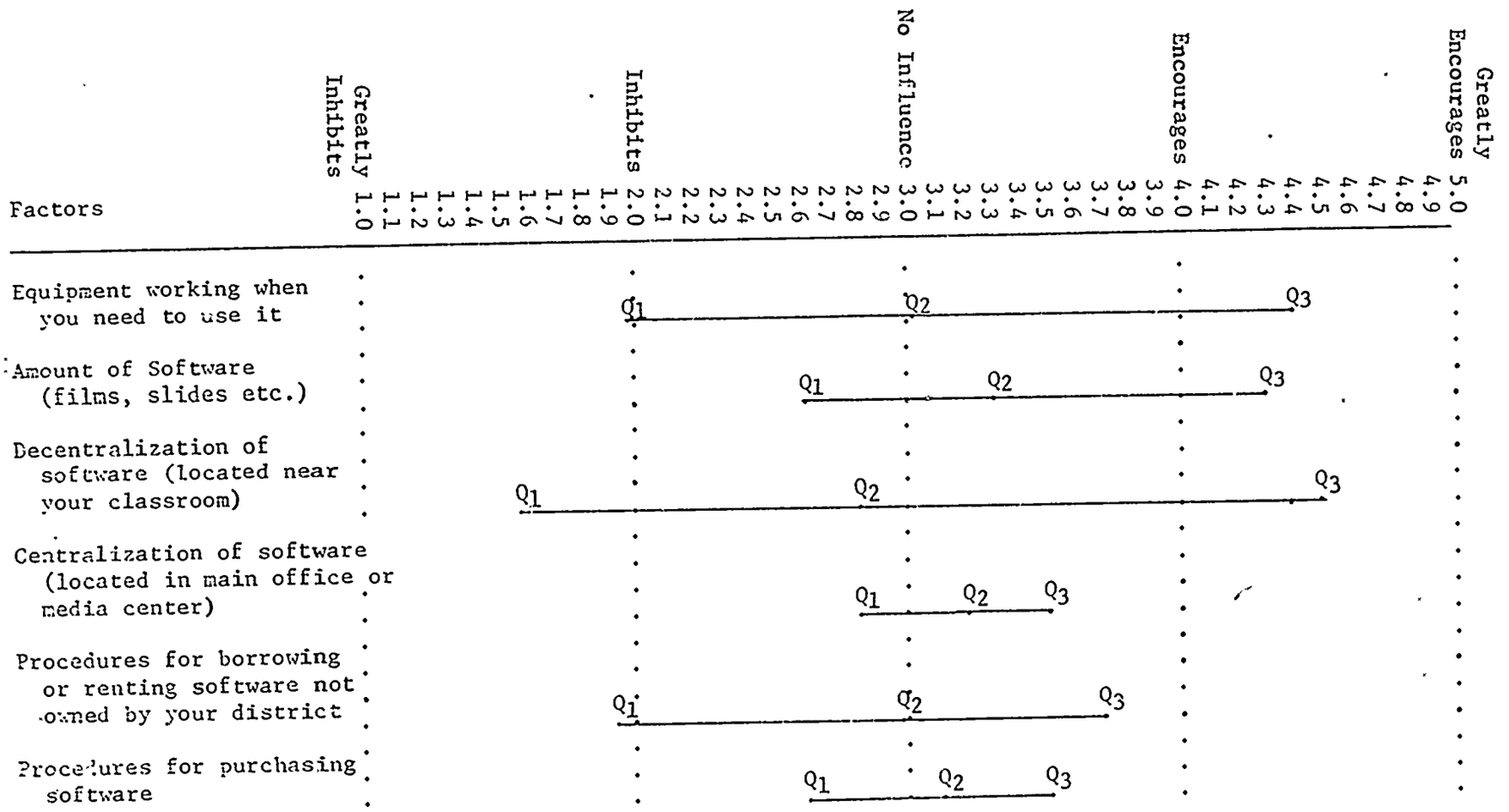


TABLE VII (continued)

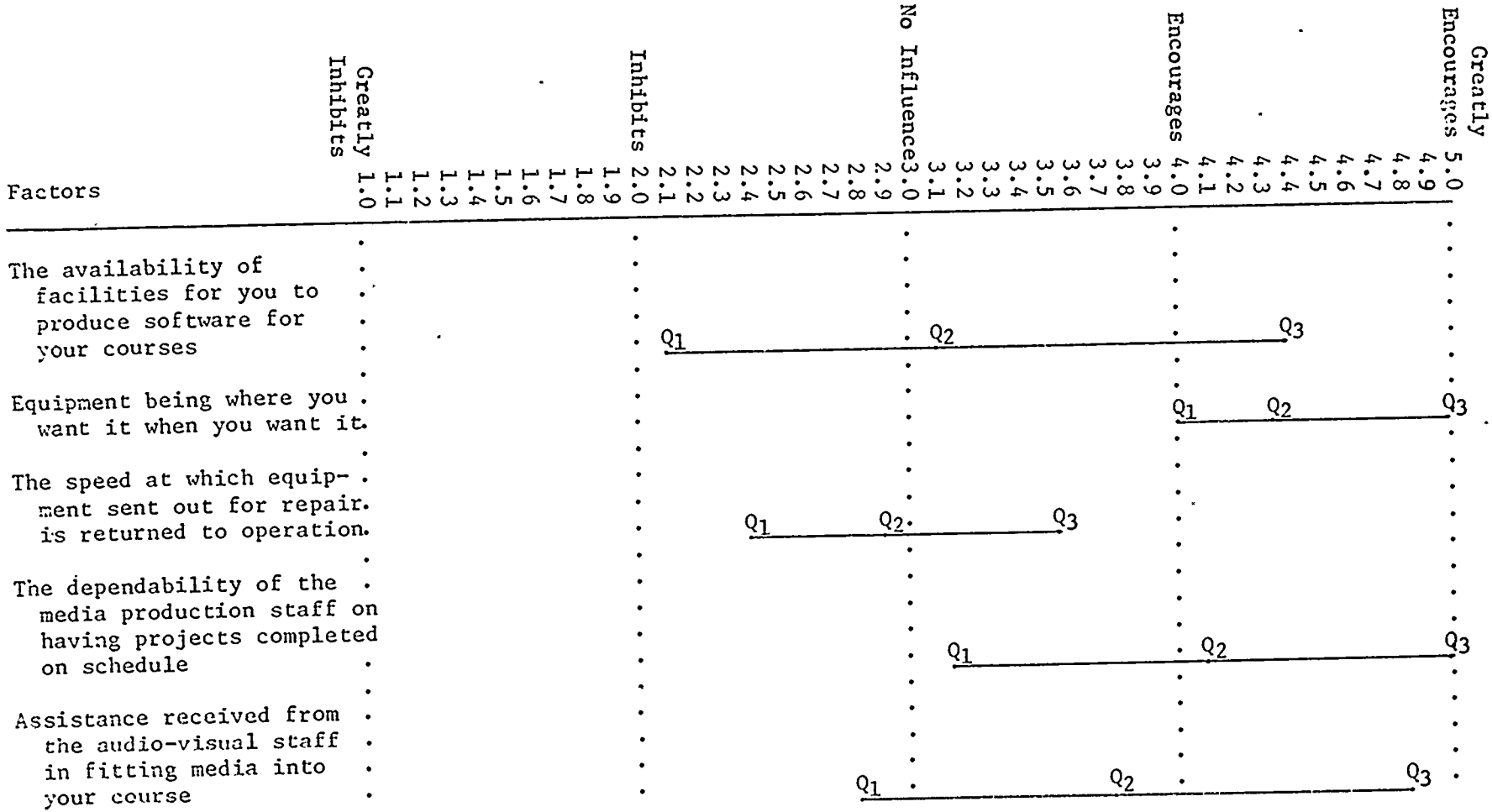
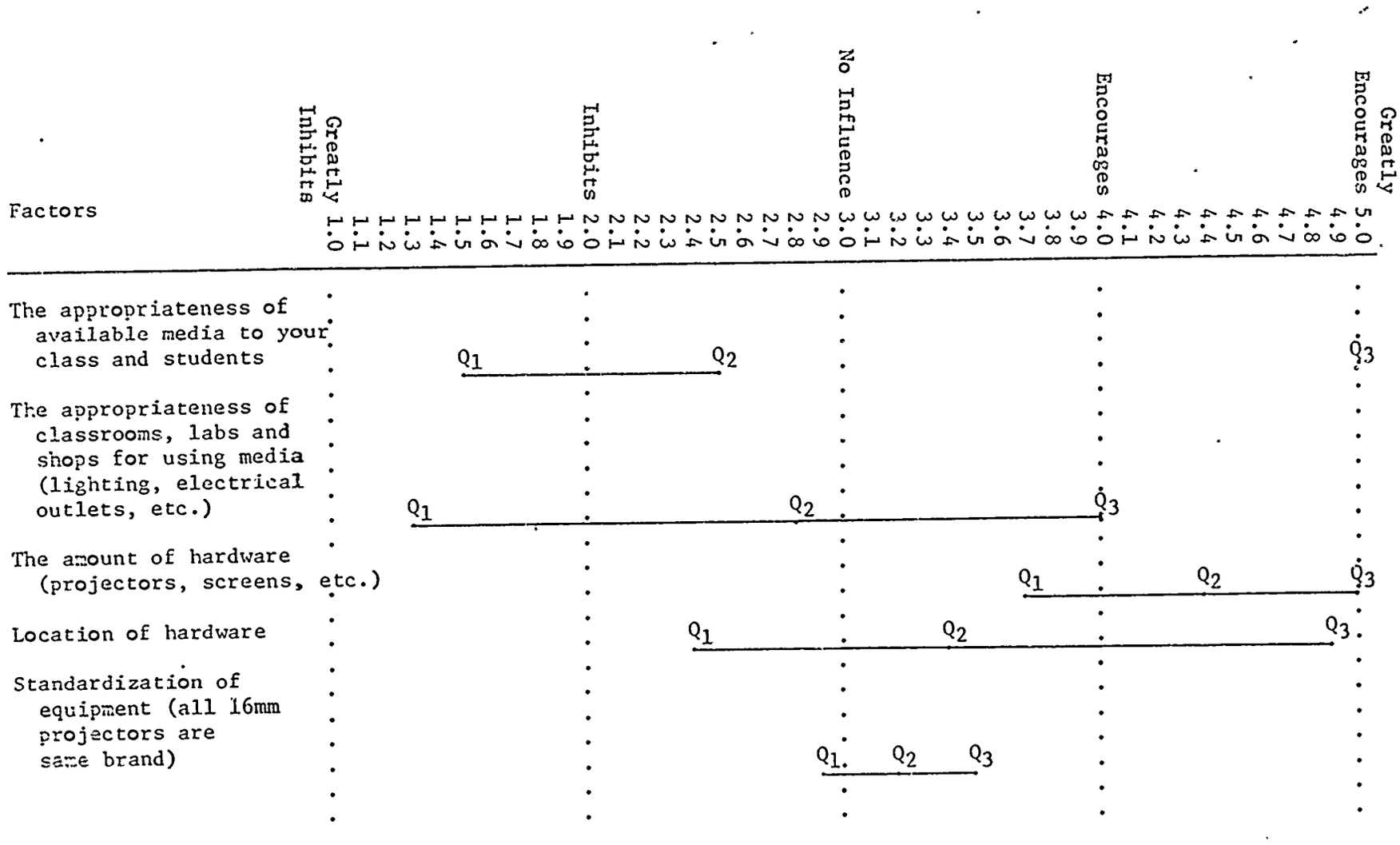


TABLE VII (continued)



The nine factors listed above reflect a healthy atmosphere in The Wisconsin VTAE system. In three of the four districts surveyed media utilization was encouraged by the existing amount, location, standardization, and dependability of hardware. The assistance rendered by the media personnel fitting appropriate and available media into courses was an encouraging factor as was the decentralization of software. The survey did not measure to what extent the software is presently decentalized.

Negative influence factors. The following factor was viewed by respondents in at least three of the four districts as having a negative influence, thus inhibiting media utilization:

> Procedures for borrowing or renting software not owned by your district.

The fact that only one factor was viewed as a negative influence by three or more of the districts surveyed may indicate one of two things: (1) that the Wisconsin VTAE System has a very small number of factors inhibiting media use or (2) that there is lack of agreement between the factors over the districts surveyed. A review of Tables IV, V, VI, and III reveals a total of twenty-six items with a median of less than three, indicating that over one third of the total responses reflected the factors as constituting a negative influence. This analysis points toward the acceptance of the second option listed above.

Summary - Factors Which Influence Media Use

Nine of the factors listed on the survey instrument were viewed as having a positive influence on media utilization in three of the four districts surveyed. Only one of the factors listed was viewed as having a negative influence on media utilization in three of the four districts. This factor dealt with the procedures for borrowing or renting software not owned by the district.

The lack of commonality in factors may indicate that negative influence factors should be dealt with on the local rather than the state level. This is indicated by the fact that many items were labeled as negative factors in one or two districts, but were positive factors or had no influence in remaining districts. For example, the factor regarding the equipment being where you want it when you want it was an inhibiting factor in Districts 3 and 12, but an encouraging factor in District 6 and a greatly encouraging factor in District 16. Likewise, the dependability of the media production staff on having projects completed on schedule was an encouraging factor in District 6 and 16, but was inhibiting factor in District 12 and showed no influence in District 3.

PLANNING AND PREPARATION OF MEDIA

Section three of the survey dealt with planning and preparation of media. Data gathered in this portion of the survey helped determine the

amount of time spent by teachers planning for, selecting, and/or producing media for class use. A second function of this section was to determine what percent of teacher planning and preparation was done during regular prep time or normal work hours and what percent was done after hours or in addition to the normal work week. The third function of this section was to measure whether or not teachers were paid for media work done in addition to the normal work load. The final factor determined in this section was whether or not teachers would like additional instruction in planning their instruction to better use media.

Table VIII illustrates the findings with reference to time spent in planning and preparation of media in the districts surveyed. Table IX illustrates the findings regarding desire for additional instruction in planning to better use media. Data is reported in percent of total responses by district. Because the computer used to tabulate responses truncates, percentages may not always add up to one hundred percent. The numbers indicated by Mdn. and IQR refer to the quantitative analysis done by the computer and are based on the numbers assigned to the column headings.

Most of the teachers surveyed indicated that they spent from one to five hours per week planning for, selecting or producing media for use in their classes. In most cases a little more than one-half of this work was done during regular prep time with the remainder done on the teachers own time. Almost all of the respondents indicated that they were not given additional compensation for work done in addition to their normal work week.

Perhaps the most significant inference drawn from this portion of the survey was the pre-eminent desire on the part of respondents for additional instruction in planning their instruction in order to better use media. This item, with responses ranging from 60 to 80 percent over the districts in favor of additional instruction was perhaps the most significant factor in determining the content of the in-service program.

This desire on the part of Wisconsin VTAE teachers for instruction to help plan for better use of media in their classroom indicates that what Saettler (1969) said about the quantity and sophistication of hardware being beyond teachers' ability to make effective use of it is true in the Wisconsin Vocational, Technical, and Adult Education System. If this is so it follows that Saettler's recommendation of the systems approach as a core technology may provide a basis for change toward the more efficient use of instructional media.

TABLE VIII

TIME SPENT IN PLANNING AND PREPARATION OF MEDIA

How much time did you spend last semester planning for, selecting and/or producing media for use in your classes?	1. Less than 1 hr./wk	2. 1-3 hrs./wk	3. 3-5 hrs./wk	4. 5-10 hrs./wk	5. More than 10 hrs./wk
District 12	21%	31%	20%	17%	8%
	Mdn = 2.39		IQR = 1.95		
District 3B	35%	45%	20%	0%	0%
	Mdn = 1.83		IQR = 1.17		
District 3G	40%	25%	25%	5%	5%
	Mdn = 1.900		IQR = 1.775		
District 6B	37%	44%	10%	3%	3%
	Mdn = 1.76		IQR = 1.16		
District 6G	28.2%	34.7%	19.5%	13%	4.3%
	Mdn = 2.125		IQR = 1.726		
District 16B	53%	38%	0%	7%	0%
	Mdn = 1.42		IQR = 1.08		
District 16G	60%	40%	0%	0%	0%
	Mdn = 1.333		IQR = .958		

TABLE VIII (continued)

		1.(25%)	2.(50%)	3.(75%)	4.(100%)
What percent of this was done during your regular teaching preparation time or normal teaching day?					
	District 12	31%	35%	19%	13%
		Mdn = 2.01		IQR = 1.60	
	District 3B	27%	16%	33%	22%
		Mdn = 2.66		IQR = 2.01	
	District 3G	42.1%	31.5%	10.5%	15.7%
		Mdn = 1.750		IQR = 1.531	
	District 6B	18%	33%	18%	29%
		Mdn = 2.44		IQR = 1.96	
	District 6G	30.9%	21.4%	33.3%	14.2%
		Mdn = 2.388		IQR = 1.870	
	District 16B	38%	7%	23%	30%
		Mdn = 2.66		IQR = 2.53	
	District 16G	40%	40%	20%	0%
		Mdn = 1.750		IQR = 1.250	
What percent was done "after hours" or in addition to your normal work week?					
	District 12	30%	40%	24%	5%
		Mdn = 1.98		IQR = 1.34	
	District 3B	52%	17%	23%	5%
		Mdn = 1.44		IQR = 1.71	
	District 3G	31.5%	26.3%	31.5%	10.5%
		Mdn = 2.200		IQR = 1.750	
	District 6B	43%	39%	4%	13%
		Mdn = 1.66		IQR = 1.23	
	District 6G	57.8%	23.6%	18.4%	0%
		Mdn = 1.363		IQR = 1.290	
	District 16B	44%	11%	44%	0%
		Mdn = 2.00		IQR = 1.87	
	District 16G	60%	40%	0%	0%
		Mdn = 1.333		IQR = .958	

TABLE VIII (continued)

Were you given additional compensation for the work done in above question?	Yes	No
District 12	4%	96%
District 3B	5%	94%
District 3G	0%	100%
District 6B	0%	100%
District 6G	0%	100%
District 16B	0%	100%
District 16G	0%	100%

TABLE IX

DESIRE FOR ADDITIONAL INSTRUCTION IN PLANNING INSTRUCTION TO BETTER UTILIZE MEDIA

		Yes	No
Would you like additional instruction in planning your instruction in order to better use media			
	District 12	80%	19%
	District 3B	68%	31%
	District 3G	63%	37%
	District 6B	71%	28%
	District 6G	70%	30%
	District 16B	83%	16%
	District 16G	60%	40%

Chapter IV

DEVELOPMENT AND TESTING OF INSERVICE WORKSHOP

This chapter involves the development and testing of the inservice workshop associated with this study. Discussion will center around two headings: (1) those activities associated with the development of the workshop, and (2) the measures of the effectiveness of the workshop. Because the workshop was developed on the basis of the survey described in Chapter III, there may appear to be some overlap or repetition in this chapter of the materials covered in Chapter III. This is necessary in order to establish relationships between the findings of the media utilization survey and the workshop which was based upon it. Forthcoming reference to "the survey" will imply the Media Utilization Survey discussed in detail in Chapter III.

DEVELOPMENT OF INSERVICE WORKSHOP

Development of the inservice workshop involved two stages: (1) the specification of workshop objectives based on the results of the survey, and (2) the determination of content and process for the workshop. This procedure follows the design of the basic instructional technology system; that is the utilization of a pre-assessment as a basis for instruction, identifying objectives based on the pre-assessment, and developing course content and process to meet the stated objectives. The second major heading of this chapter rounds out this basic instructional technology design by implementing the concept of evaluation into the design.

Specification of workshop objectives based on survey results

The survey presented in Chapter III provided a comprehensive measure of the status of the Wisconsin VTAE system with regard to media acquaintance, utilization, and interest in studying. The survey also identified factors which influence media use and provided a measure of VTAE teacher status with regard to planning for and preparation of media. Acting as a basis for workshop planning, the survey identified a number of areas which may have a bearing on teacher utilization of instructional media. For specific procedures, analysis, and results of the survey, please refer to Chapter III.

Most of the factors outlined in Chapter III were items of an administrative nature and therefore could not produce any positive growth by their inclusion in an instructional technology workshop. However, those that were relevant formed a basis for selection of content and subsequent development of the workshop. They were

1. The positive factor of the assistance rendered by the audio-visual staff in fitting media into courses.

2. Existing levels of acquaintance and proficiency with respect to specific media types.

3. The desire on the part of the teachers surveyed for additional instruction in planning their instruction to better use media.

Objective one. In an effort to enhance the positive factor of assistance rendered by the audio-visual staff in fitting media into courses the following was adapted as one of the major objectives of the workshop:

> Instructors involved in this workshop will develop the competency to identify members of the instructional services staff who can assist in planning for, procuring and producing instuctional materials and be able to work with those staff as a team in pursuit of the goal of improving instruction.

Objective two. Because the existing levels of teacher acquaintance and proficiency with respect to specific types of media seemed acceptable it was decided that in depth treatment of specific media types would not be desirable. Rather a broader approach to media was decided upon and the following objective set:

> Instructors involved in this workshop will develop the competency to select a portion of their course to be taught with instructional media, identify the possible media types to be used and support this choice on the basis of a systems approach to instructional technology.

Objective three. The desire for additional instruction in planning for better use of media prompted the inclusion of an objective aimed at developing teacher competency in the design and use of a systems approach to a management strategy for implementing desired changes in their courses. Thus, the third and final major objective was developed:

> Instructors involved in this workshop will develop the competency to design a management strategy network including major goals, checkpoints, and expected completion dates of those activities necessary for implementing the desired changes in their courses.

Three factors were considered in determining the content and process of the workshop. The media utilization survey which was discussed in Chapter III was the major basis for decisions made in this area. A second source for decisions regarding workshop content and process was a review of recent literature. This helped point out newer developments in the field. To avoid replication, the existing audio-visual programs were examined.

Results from the Survey

As survey results were analyzed, two major factors became apparent which had bearing upon workshop development. First, the diversity of interest within the VTAE faculty with respect to specific media types made it impossible to effectively satisfy everyone's needs in a short (three day) workshop. This factor was a function of the wide variety of media types available to today's educator as well as the large number of teachers surveyed. The second and most determining factor pointed out by the survey was a strong desire on the part of staff for instruction in planning for better use of media.

Recent Literature

Review of recent literature was highly instrumental in influencing decisions regarding content and process of the workshop away from the hardware - software realm to that of process. Saettler (1969) makes the point that the amount of sophistication of hardware available to teachers is far beyond their ability to make effective use of it. (Saettler, 1969, p. 3) This situation would be comparable to an industry which had vast numbers of production machines but no ability to assemble these machines into an efficient production line. Saettler goes on to recommend the systems approach as a core technology around which other technologies may be clustered and integrated in application. (Saettler, 1969, p.4)

The need for a redirection of thoughts regarding instructional technology is brought home by Finn (1968) in his observation:

> Educational or instructional technology is sometimes too narrowly thought of as confined to hardware . . . actually, much more involved in the concept. (Weisgerber, 1968, p. 290)

In terms of new developments in instructional technology in-service programs the literature appears to indicate a need for increasing emphasis on process; emphasizing the systems approach to instructional technology.

Existing In-service Programs

With few exceptions existing programs in Instructional Technology deal only with audio-visual hardware and software. They emphasize production of software or operation of equipment but do not prepare teachers to plan for effective integration and application of instructional materials to the classroom situation. This lack of ability to plan for effective media utilization is a basis for negative affect on the part of teachers toward instructional technology.

Two in-service programs which have been or are being evaluated at this time are making an attempt to correct this situation. They are:

1. A series of nine media professional seminars offered through the Instructional Resources Coordinator - Media, at Milwaukee Area Technical College, 1015 North Sixth Street, Milwaukee, Wisconsin, 53203.

2. The Educational Technology Project, National Science Teachers Association, Washington, D. C., (See ERIC document numbers ED 044 289, ED 044 290, ED 044 291 and ED 044 292.)

Selection of Workshop Content and Process

Ramifications of the factors outlined above were weighted heavily and synthesized with the stated objectives to form the basic elements of the content and process for the workshop. The resulting product was an

instructional system designed to (1) introduce the systems approach as a method of planning for the effective utilization of instructional media, (2) provide examples of the successful utilization of instructional media in the vocational school, (3) provide a basis for the systematic selection of instructional media for classroom and individual student use, and (4) provide for meaningful interaction between the teachers and the instructional media service personnel. Pursuant to these goals the following elements were integrated to comprise the content and process of the workshop:

A. Presentation of theory behind systems approach.

B. Specific examples of success with instructional technology from within the school.

C. Presentation and practice in the use of criteria for selection of instructional media.

D. Opportunity for teachers to design a systems flow chart to fit their individual needs under guidance and direction of a consultant.

E. Opportunity for teachers to interact with instructional media laboratory services staff.

Presentation of theory behind systems approach. This involved the definition of an instructional system and analysis of two examples including a brief explanation of the component parts. Vimcet sound filmstrips were used for more in-depth study of the aspects of planning (Vimcet No. 8, A Curriculum Rationale) and evaluation (Vimcet No. 16, Modern Measurement Methods).

Specific examples of success with instructional technology from within the school. This element involved three main presentations. One was a sound-slide presentation of the success being experienced by teachers at Fox Valley Technical Institute with individualized instruction. The remaining two presentations were given by teachers from Fox Valley which had been successful in mediating their instruction. These presentations included display of materials, discussion of production techniques, problems and effect on classroom environment and the role of the teacher and student. A great degree of interaction was inherent in this portion of the workshop.

Opportunity for teachers to design a systems flow chart to fit their individual needs under the guidance and direction of a consultant. The experiences provided in this portion of the workshop were a modification of the systems kit developed by the Education Technology Project which was referred to earlier in this report. Following is a list of activities involved in this experience in chronological order:

1. The system was defined as a series of activities needed to reach a specific goal.

2. Teachers were asked to define their goal. (Write it down)

3. Teachers were divided into small groups to brainstorm possible activities in specific areas which may lead toward the goal. (For results of this brainstorming session, see Appendix F.)

4. Results of brainstorming session were distributed to each teacher.

5. Each teacher selected those activities which were applicable to his goal and arranged them into a system.

6. Each teacher explained his system to another teacher who reacted to it and critiqued it. After revision, each teacher interacted with a small group of teachers for additional input.

Opportunity for teachers to interact with instructional media laboratory services staff. This element was comprised of a presentation by each of the I.M.L.S. staff members on what services they were capable of providing and procedures for obtaining these services. Provision for interaction between teachers and staff was an integral part of this element.

MEASURES OF WORKSHOP EFFECTIVENESS

The effectiveness of the workshop was measured by two norm referenced instruments and two criterion assessments. Norm referenced instruments included (1) a pre-post workshop assessment of participants' attitude toward instructional technology (Appendix B) and (2) a workshop critique (Appendix C). Criterion referenced measures were (1) the criterion test from the programmed text (Appendix D) and (2) completed systems flow charts (sample - Appendix G).

Pre-Post Workshop Attitude Survey (Validation Questionnaire)

The pre-post workshop attitude survey was drawn with permission from the evaluation instrument used by the Educational Technology Project. It consisted of a nine item semantic differential in which workshop participants were asked to indicate their attitude toward Educational Technology. Identical copies of the questionnaire were completed by the workshop participants before and after the workshop.

Pre-assessment was based on forty-six observations while post assessment was based on thirty-four observations. These numbers reflect the total number of persons in attendance at the time of evaluation. Because it was assumed that all who completed the pre-assessment would also complete the post-assessment, no control was placed on respondents to determine who did and did not complete the survey. This factor accounts for an undetermined source of error.

Table X is a list of the nine pairs of words describing attitudes toward Educational Technology. Respondents were asked to classify their attitude toward Educational Technology as being favorable, mildly favorable toward or balanced between the words in each matched set. Quantitive analysis was made possible through the use of a five point scale. A response of number one indicated that the respondent's attitude toward instructional technology was favorable toward the descriptor on the left. A response of number two indicated that the respondent's attitude toward instructional technology was mildly favorable toward the descriptor on the left. A response of number three indicated that the respondent's attitude toward instructional technology was balanced between the two descriptors. A response of number four indicated that the respondent's attitude toward instructional technology was mildly favorable toward the descriptor on the right. A response of number five indicated that the respondent's attitude toward instructional technology was favorable toward the descriptor on the right.

TABLE X

LIST OF DESCRIPTORS USED TO ASSESS ATTITUDE TOWARD INSTRUCTIONAL TECHNOLOGY

	Favorable	Mildly Favorable	Balanced	Mildly Favorable	Favorable	
Random Structure	1	2	3	4	5	System
Teaching	1	2	3	4	5	Learning
Objective evaluation	1	2	3	4	5	Subjective Evaluation
Validated	1	2	3	4	5	Invalidated
Rigid	1	2	3	4	5	Adaptive
Process	1	2	3	4	5	Machines
Single Learning Source	1	2	3	4	5	Multiple Learning Source
Realistic	1	2	3	4	5	Unrealistic
Effective	1	2	3	4	5	Ineffective

Table XI illustrates the change in attitude indicated by workshop participants on a pre-post workshop basis. The lines from Q_1 to Q_3 indicate the inter-quartile range which encompases 50% of the survey responses. The decimal divisions presented in Table XI indicate the quantitative results of the Q analysis of the data which was done by computer.

Analysis of Pre-Post Workshop Validation Questionnaire

The following changes in attitude toward Educational Technology on the part of workshop participants were indicated by the survey.

Item 1. Random Structure - System
Changed from a balance toward high favor for System.

Item 2. Teaching - Learning
Changed from a balance toward high favor for learning.

Item 3. Objective Evaluation - Subjective Evaluation
Little change from moderate favor for objective evaluation.

Item 4. Validated - Invalidated
Changed from balance toward moderately high favor for Validated.

Item 5. Rigid - Adaptive
Changed from somewhat of a balance with moderately high favor for Adaptive to moderately high favor for Adaptive, eliminating most of the pre-test favor for Rigid.

Item 6. Process - Machines
Changed from a balance with a normal (compared to other survey items) IQR to a balance with a much smaller Inter-Quartile Range. This indicates an increase in favor for a balance between Process and Machines.

Item 7. Single Learning Source - Multiple Learning Source
The high favor for Multiple Learning Source on the pre-workshop survey showed very little change on the post workshop survey.

Item 8. Realistic - Unrealistic
The high favor for Realistic on the pre workshop survey was slightly increased on the post workshop survey which showed a decrease in the inter-quartile range, indicating a decrease in responses in favor of Unrealistic.

Item 9. Effective - Ineffective
The moderately high favor for Effective on the pre workshop survey changed to a high favor for Effective on the post workshop survey with a somewhat higher inter-quartile range reflecting a greater diversity of responses.

TABLE XI

Change in Attitude Indicated by Workshop Participants

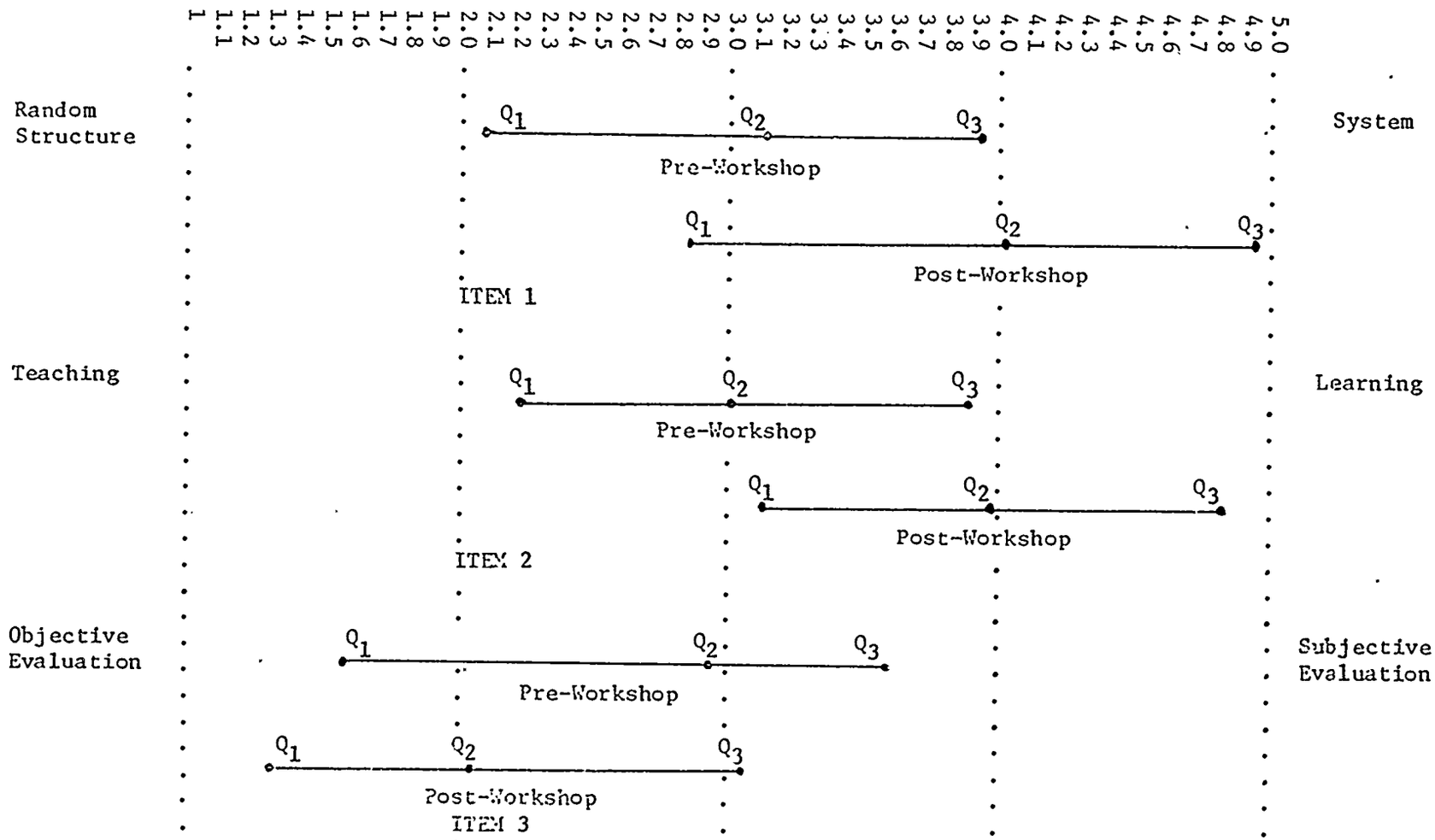


TABLE XI - Continued

Change in Attitude Indicated by Workshop Participants

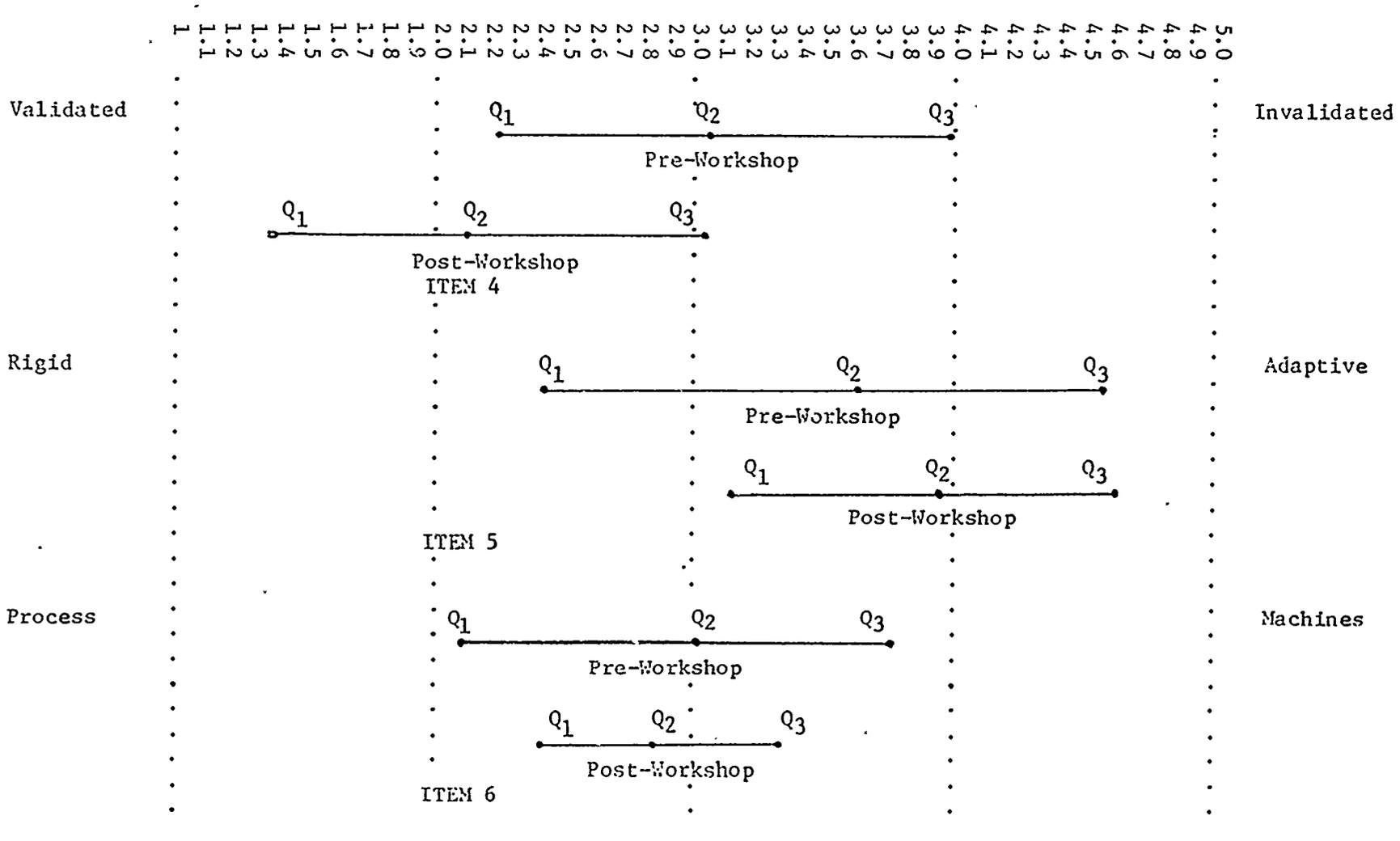
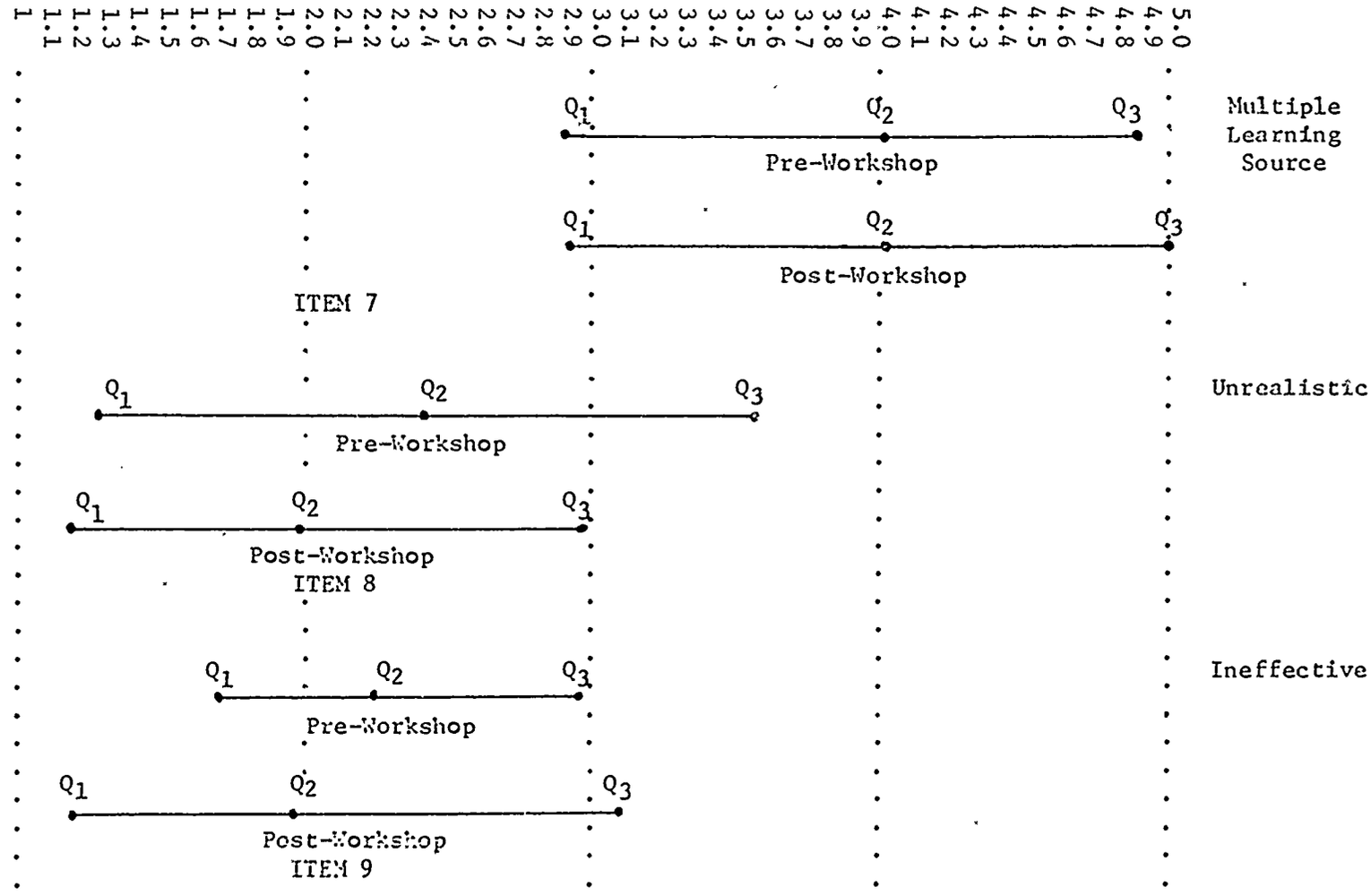


TABLE XI - Continued

Change in Attitude Indicated by Workshop Participants



Data presented by the Pre-Post Workshop survey seems to indicate varying degrees of increase in positive values toward Educational Technology on the part of workshop participants. However, it is not possible to determine what portions of the workshop were most influential in producing these changes. Some measure of the relative worth of specific elements of the workshop may be drawn from the workshop critique which is discussed in the next section of this chapter.

Workshop Critique

As a measure of effectiveness of each of the parts of the workshop, the participants were asked to respond to a critique form (appendix C) which allowed them to evaluate each portion of the workshop by means of a semantic differential of these five paired opposites:

Realistic	Unrealistic
Motivating	Discouraging
Effective	Ineffective
Helpful	Useless
Time well spent	Waste of time

Quantitative analysis was made possible through the use of a five point scale, with a response of one being positive and a response of five being negative. A Q analysis of the data collected by the workshop critique is presented in Table XII.

A systems approach to instructional decision making. Responses for this item tended to be somewhat normally distributed for each of the pairs. Three of the pairs, number 2, 4 and 5 had frequencies greater than .50 for the point of balance between the pair. Number three had a tendency to cluster around the point of balance with a median of 3.00 on the five point scale. Number one had a mild tendency toward the realistic end of the scale. Based on the results it would appear that this presentation, while not negatively received to any significant degree, also lacks sufficient positive effect to be of future value in its present form.

Presentations by local instructors. On the basis of the workshop critique, this facet of the workshop appeared to be a major success. For this section there was no negative response on any of the five items. Item one, Realistic - Nonrealistic, showed 100% of the respondents as indicating this facet as being realistic; .727 strongly realistic and .272 mildly realistic. Item two, Motivating - Discouraging showed all but .09 responding as viewing this part of the workshop as motivating; the .09 indicating a balance between motivating and discouraging. Each of the remaining three items contained .06 at the balance point with the remainder clustering strongly toward the positive side of the semantic differential. Responses strongly suggest that this portion of the workshop was of high merit. Based upon this response the Instructor

TABLE XII

ANALYSIS OF RESPONSES TO
THE WORKSHOP CRITIQUE

A Systems Approach to Instructional Decision Making.							Median	IQR
	1	2	3	4	5			
1. Realistic	.151	.333	.393	.121	.000	Unrealistic	2.538	1.377
2. Motivating	.060	.181	.575	.181	.000	Discouraging	2.947	.868
3. Effective	.90	.181	.454	.212	.060	Ineffective	3.000	1.232
4. Helpful	.090	.181	.545	.151	.030	Useless	2.916	1.000
5. Time well spent	.060	.121	.515	.212	.090	Waste of time	3.117	1.117
Presentations by Local Instructors. (First day)								
1. Realistic	.727	.272	.000	.000	.000	Unrealistic	1.187	.739
2. Motivating	.575	.333	.090	.000	.000	Discouraging	1.358	1.088
3. Effective	.636	.303	.060	.000	.000	Ineffective	1.285	.982
4. Helpful	.696	.242	.060	.000	.000	Useless	1.217	.860
5. Time well spent	.696	.212	.060	.000	.000	Waste of time	1.217	.891

TABLE XII (continued)

Characteristics of Media							Median	IQR
	1	2	3	4	5			
1. Realistic	.151	.363	.242	.181	.060	Unrealistic	2.458	1.697
2. Motivating	.030	.242	.363	.242	.121	Discouraging	3.125	1.562
3. Effective	.090	.242	.303	.303	.060	Ineffective	3.050	1.718
4. Helpful	.093	.250	.281	.312	.062	Useless	3.055	1.775
5. Time well spent	.062	.375	.250	.250	.062	Waste of time	2.750	1.750
Designing a Systematic Approach . . . of a Management Strategy.								
1. Realistic	.272	.303	.272	.090	.060	Unrealistic	2.250	1.722
2. Motivating	.242	.212	.363	.121	.060	Discouraging	2.625	1.776
3. F tive	.187	.250	.375	.187	.000	Ineffective	2.666	1.583
4. Helpful	.281	.281	.312	.125	.000	Useless	2.277	1.711
5. Time well spent	.312	.156	.281	.187	.062	Waste of time	2.611	2.200

TABLE XII (continued)

Utilization of Instruction Media Laboratory Services.							Median	IQR
	1	2	3	4	5			
1. Realistic	.727	.242	.030	.000	.000	Unrealistic	1.187	.750
2. Motivating	.606	.212	.181	.000	.000	Discouraging	1.325	1.266
3. Effective	.727	.212	.060	.000	.000	Ineffective	1.187	.763
4. Helpful	.848	.121	.030	.000	.000	Useless	1.089	.589
5. Time well spent	.787	.181	.030	.000	.000	Waste of time	1.134	.634
Reaction to Survey Instrument.								
1. Realistic	.060	.393	.393	.121	.030	Unrealistic	2.615	1.269
2. Motivating	.030	.272	.545	.060	.090	Discouraging	2.861	1.013
3. Effective	.060	.303	.484	.090	.060	Ineffective	2.781	1.171
4. Helpful	.060	.272	.484	.090	.090	Useless	2.843	1.164
5. Time well spent	.060	.272	.515	.030	.121	Waste of time	2.823	1.114

TABLE XII (continued)

Small Group Presentations.	1	2	3	4	5		Median	IQR
1. Realistic	.212	.333	.272	.121	.060	Unrealistic	2.363	1.636
2. Motivating	.151	.272	.303	.181	.090	Discouraging	2.750	1.763
3. Effective	.272	.272	.212	.151	.090	Ineffective	2.333	2.047
4. Helpful	.333	.242	.212	.181	.030	Useless	2.187	2.071
5. Time well spent	.303	.181	.242	.181	.090	Waste of time	2.562	2.300

Presentation portion of the workshop can be classified as Realistic, Motivating, Effective, Helpful and Time Well Spent.

Characteristics of media. This section of the workshop, which was handled through the use of a programmed text (appendix D) seemed generally mediocre with a slight negative tone in terms of the response on the critique. Responses to item one had a very weak tendency toward Realistic with a total of .514 toward that and only .151 of the respondents indicating strong tendency toward Realistic. Similarly number five showed a weak tendency toward time well spent with .25 at the axis and identical extremes of .062, the 3.75 which indicated mild favor toward time well spent is only slightly greater than the .250 which indicated mild favor toward waste of time. The remaining items two, three and four, possessed mild preference toward the negative aspects of discouraging, ineffective, and useless.

Based on the response to the characteristics of the media portion of the workshop, it appears that improvement is needed in this aspect for it to be of value.

Designing a systematic approach . . . of a management strategy. This part of the workshop, which involved a very brief presentation and was composed primarily of a "hands on" activity in systems development, received a moderately positive evaluation. A total of 57.5% of the respondents rated this portion as either moderately realistic or very realistic, with 27.2% rating it as balanced between realistic and unrealistic and 15% rating it as either moderately or very unrealistic. Forty-five and four tenths percent of the respondents felt that this portion of the workshop was moderately or very motivating, with 36.3% leaning toward neither motivating nor discouraging and 18.1% viewing it as either moderately or very discouraging. Forty-three and seven tenths percent felt this part of the workshop was effective while 37.5% balanced between effective and ineffective while 18.7% felt it was moderately ineffective and none indicated it was very ineffective. Fifty-six and two tenths percent saw this facet of the workshop as either moderately helpful while 31.2% balanced between helpful and useless and 12.5% perceived it as moderately useless, again with none indicating it was totally useless. Forty-six and eight tenths percent felt the time devoted to this activity was well spent while 28.1% balanced between "time well spent" and "waste of time" with 24.9% indicating varying degrees of waste of time.

On the basis of this critique it is felt that, although some improvement is in order, the material presented and the activities provided in the portion of the workshop devoted to Designing a Systems Approach are suitable for use with other teachers in similar situations.

Utilization of instructional media laboratory services. This part of the workshop, which allowed for interaction between the Media Services staff and the workshop participants received no negative indications on any item. All of the items save number two--Motivating Discouraging--with 18.1% of the responses balanced, had over 90% of the responses toward

the positive item of the semantic differential. Again all items save number two with 60.6% had over 70% of the responses in the extremely positive position. Number four, Helpful-Useless, went still further with 84.8% of the responses in the extremely positive position.

Based on this response, it seems evident that the material presented and the type of interaction provided by this aspect of the workshop should be considered among the most positive elements of this workshop.

Reaction to survey instrument. This section of the workshop presented the results of the Media Utilization Survey from phase one of this project and provided for interaction between workshop participants and the Assistant Director of Instructional Services for the cooperating district. Respondents rated it as marginally positive in the realistic-unrealistic item. It was predominantly balanced over all other items.

Because the value of this facet of the workshop appears to be marginal, it is not recommended for inclusion in future workshops in its present form.

Small group presentations. The small group presentations which allowed workshop participants to interact and provide mutual input to each other's systems flow chart received a moderately positive rating on all five items.

Criterion Test from Programmed Text

This assessment measured one degree of success of the programmed text. Participants were given the following directions:

> On a piece of paper identify a portion of your course which you would like to improve through the use of instructional media. Next, consider each of the eight factors covered in level one and indicate whether or not each factor would be critical to you and your situation. Give a brief statement of reasons for your choice. Then, on the basis of the factors you indicated as critical, pick at least two types of media which may satisfy your requirements. Select a partner and discuss each of your products in turn, giving reasons for your choices and offering suggestions for improvement Make any needed corrections and have your completed materials typed up and hand it in to your instructor. This will comprise the criterion test for this package. Please use the following outline:
>
> a. Statement of what portion of course media will be used for.
>
> b. Analysis of factors.
>
> c. Media selected and why

Of the teachers participating in the workshop, twenty-five completed the assignment and handed it in. Although data regarding the reasons

for this low return was not gathered, major factors seemed to include both lack of sufficient time to complete the programmed text or some deficiency in the programmed text itself. Follow-up on non-respondents was impossible due to their diversity of geographic location during the summer months and the lack of time between the workshop and project termination date.

The data which was gathered met the evaluation criteria as follows:

Logic - Twenty-two of the responses contained a logical analysis of the selection factors and resulting media identification. The remaining three responses were lacking logical analysis in varying degrees.

Usefulness - Because participants analyzed factors and selected materials for their courses it is assumed that the product they developed would be of use to them. Each participant retained a copy of his criterion test for his personal use. A possible factor which would detract from the apparent utility of this assignment was the tendency of several respondents to choose their media arbitrarily and analyze this selection according to the given factors rather than to analyze the selection factors with respect to their needs and then select media based on factors which they perceived as critical.

Degree of Cognition - Twenty-one of the responses indicated at least a knowledge level of cognition of the material presented in the programmed text. Four lacked cognition of all or part of the text material. Nineteen of the twenty-one responses at the knowledge level contained some degree of analysis of how the given factors would effect the selection of media for their courses. Fifteen respondents indicated use of this factor analysis on a basis for media selection. Based on this analysis it may be concluded that nineteen of the twenty-five respondents showed evidence reaching the analysis level of cognition and fifteen of the 19 appeared to reach either the synthesis or evaluation level.

Completed Systems Flow Charts

The second product carried away by the workshop participants was a completed systems flow chart of the activities necessary for curriculum development in their respective courses. A copy of each of these systems was retained for analysis as an indication of workshop effectiveness with respect to the process aspect of instructional technology. Appraisement of the systems presentations' influence upon participants may be inferred from the internal logic and apparent usefulness of the systems developed.

A total of thirty-eight systems flow charts were turned in. All of these presented a logical method of achievement of their stated goal. The apparent usefulness of the systems varied according to the degree of

sophistication from chart to chart. On the basis of the charts it was felt that the systems presentations were effective in that all of the charts turned in had the elements of establishment of objectives and some form of evaluation procedure on quality control. The only negative factor encountered on the charts which were turned in was a statement by one individual that he thought his chart was incomplete and therefore of poor quality. One of the workshop participants, Mr. George Rothenback, was motivated by the workshop to go beyond the required assignment of the workshop to spend personal time and effort in development of a System Management for Individualized Instructional Development which is generalizable for use by any VTAE administrator or teacher for any discipline. Mr. Rothenback has graciously permitted the reproduction of his system in this document so that others may benefit from his efforts. A sincere thank you is extended to Mr. Rothenback for this educational contribution. A complete copy of Mr. Rothenback's system may be found in appendix G.

SUMMARY - DEVELOPMENT AND TESTING OF IN-SERVICE WORKSHOP

Based primarily on the results of the media utilization survey discussed in Chapter III, an in-service workshop was developed to (1) introduce the systems approach as a method of planning for the effective utilization of instructional media, (2) provide examples of the successful utilization of instructional media in the vocational school, (3) provide a basis for the systematic selection of instructional media for classroom and student use, and (4) provide for meaningful interaction between the teachers and the instructional media service personnel. This program was tested and found to be effective in producing a more positive attitude toward instructional technology. The elements of the in-service program which were rated highest by the participants were those that involved interaction among teachers within the system and between the teachers and the instructional media service personnel.

Chapter V

CONCLUSIONS AND RECOMMENDATIONS

In an effort to increase media utilization in the VTAE district, existing factors and levels of utilization were analyzed. This analysis formed a basis for the development of a media utilization workshop. The workshop, which was designed to increase participants knowledge of the systems approach to instructional technology and improve their attitude toward instructional technology, was piloted and tested.

The conclusions arrived at by this study are the results of (1) the media utilization survey developed and implemented in phase one of the study and (2) the instructional technology in-service workshop developed and tested in phase two of the study. These conclusions may be useful in formulating a picture of the current status of media utilization in the Wisconsin VTAE System and in making decisions regarding the possibilities of staging a workshop designed from and built to teach the systems concept of instructional technology.

Media Utilization Survey

The existing audio-visual service programs in the Wisconsin VTAE System have been effective in acquainting teachers with the more common types of media. The programs have been marginally successful in developing proficiency on the part of the VTAE faculty in the use of media for instruction. Existing programs have not however developed teacher competency in planning instruction for the optimum use of instructional media.

Facilities planners have done an adequate job in providing hardware for teacher use in the Wisconsin VTAE Districts surveyed. The amount, location, and dependability of the audio-visual hardware appears to be adequate in most cases.

The existing audio-visual service personnel have done an adequate job in helping the VTAE faculties in their district fit media into their courses. Suitable software appears to be available in most cases. Use of this software is encouraged by the decentralized location.

Instructional Technology In-Service Workshop

This study has indicated that the systematic model for the in-service training of classroom teachers developed by Price (Price, 1971) can be used with success on the vocational-technical school level in Wisconsin. Because the data that formed the basis for workshop development was drawn from a stratified sample of VTAE districts in Wisconsin the workshop developed by this study should, with some modification be useable in any of the Wisconsin VTAE districts. This study has further indicated that the attitude of teachers toward instructional technology can be improved through the use of an in-service workshop.

RECOMMENDATIONS

Recommendations for the Construction of Instructional Technology In-Service Workshops

Persons interested in implementing the type of workshop developed by this study should be cautioned against the "across the board" use of the workshop presented in this document. It is, rather, recommended that interested parties use the process and instruments described herein for the development of a program more closely tailored to the individual needs of their teachers. A further recommendations is that a serious consideration be given to the utilization of the materials and process developed by the Educational Technology Project. (Ziener, 1970).

On the basis of this study as well as feedback from workshop participants a number of recommendations are in order regarding the administrative aspects of workshop development and implementation. Following is a list of such recommendations:

A. Keep the number of participants for any given workshop small.

B. The group of workshop participants should be as homogeneous as possible with respect to subject, instructional needs, interest, and entry level of competency.

C. Content should be narrow in range and should strongly reflect the needs of the participants.

D. Maximum interaction should be provided.

E. The use of local personnel in putting on the workshop is a postive factor.

Recommendations for Use of This Study

There are several applications relevant to the material presented herein. The Media Utilization Survey developed in phase one can be used to provide a comprehensive picture of the status of media in any given educational situation. In cases where the teacher population is similar to that of the group where the workshop was tested and content and process of the workshop presented in Chapter IV may be adapted with hopes of achieving the same results as were found in this study. Where the teacher population is not similar to the experimental group used in this study, one may replicate the process used to design a workshop which more closely reflects the needs of the personnel involved. Persons doing this may wish to keep in mind the recommendations outlined in the preceeding section of this chapter.

Recommendations to the Administration of District 12

Since many of the factors influencing media use pointed out in the survey were functions of administrative action rather than factors intrinsic to faculty, recommendations were made to the administration of the cooperating district regarding action which may enhance their use of media on the part of teachers in that district. Recommendations were as follows:

1. That equipment repair services be analyzed and upgraded.

2. That software be decentralized; but a central access (cataloging) system be maintained.

3. That procedures for borrowing, renting, purchasing software be simplified and/or additional service personnel be added to this function.

4. That availability of facilities for teachers to produce software be increased and/or greater effort made to acquaint teachers with currently available facilities.

5. That additional audio-visual service personnel be added to perform functions related to media production.

6. That the existing distribution system be critically analyzed and corrective action taken.

Because District 12 has moved from a multi-campus to a single campus institute since the survey which formed the basis for the above suggestions was taken, many of the above suggestions may have been already taken care of. The above suggestions should not be viewed as criticism of the existing program, but rather as counsel of possible steps toward the achievement of an ultimate program. No discussion of which of the above suggestions were implemented by the district (12) will be included in this report.

RECOMMENDATIONS FOR FURTHER STUDY

Several possibilities for further study stem from the material presented herein. These recommendations for further study fall within three major categories: (1) follow up of the effectiveness of this study, (2) testing of the program developed by this study in different applications, and (3) topics related to this study.

Follow-Up of Effectiveness of This Study

Because of certain time limitations it was impossible to accurately measure certain aspects which related to this topic. One aspect is that of change in media utilization at District 12 as a result of this project. Because project funding terminated before the beginning of the

fall semester which was to follow the summer during which the in-service program was piloted, it was impossible to collect post-in-service data on utilization. Those interested in doing a follow-up on this project may use the utilization data collected in the media utilization survey as a pre-assessment and run a post-assessment to determine what change, if any, took place in media utilization as a result of this project.

Test of This Program in Different Applications

Interested parties may wish to test the in-service program developed in this project in other vocational districts or in schools outside the Wisconsin VTAE Systems. There are various levels of this type of test. One level would involve the use of the media utilization survey as a basis for development of a new program on modification of the existing program for a specific instance. For best results, in-service programs should be tailored to the needs of specific schools and specific teachers within the schools. It is his opinion that the design of one program to satisfy the needs of a heterogenous population, such as was originally hoped that this program would do, is very discouraging and impractical because of the lack of well defined content which is relevant to all the participants.

Another level of testing the existing program would be to adopt the objectives and process outlined herein and test it in one of the other VTAE districts in Wisconsin. Such a test would be useful in determining to what extent if any this workshop is generalizable.

Related Topics

Because this project was conducted under the assumption that broader use of all types of media would improve the quality of instruction, a more basic study would involve the testing of this premise. Studies under this category would include the comparison of mediated versus non-mediated classes in vocational school in terms of student preference, competency growth, and possible placement. A further subdivision would involve the determination of which types of media vocational-technical student refer to use. This may be a broadscale study or may be analyzed course.

Other related areas may be drawn from the study of the systems approach to instructional technology. Because this is a developing trend in instructional technology, it appears to be a very appropriate area for research. One aspect which may be considered involves the testing of the effectiveness of teachers who use the systems approach to instructional technology versus those who do not. This aspect could include the dimension of student preference, terminal competency, and placement. Another study in this area may include the determination of how well current education programs for audio-visual specialists are preparing personnel to help teachers implement the systems or total instructional technology approach to education. This dimension could be

further carried through the completion of a project to design and test a Master's degree program to develop personnel who are competent in helping teachers integrate the systems approach as opposed to existing programs which are hardware and software oriented.

APPENDIX A, NO. 1

MEDIA UTILIZATION SURVEY

COMPLETE FORM

MEDIA UTILIZATION SURVEY

Introduction: The following survey was designed to determine the media used by VTAE teachers, identify factors that influence their use of media, and determine teacher interests in studying various media. Please be frank, as we are primarily interested in helping you obtain the type of media program that will be of the most benefit to you.

1. School _____ Position _____
2. Years of teaching experience _____
3. Highest degree held _____
4. A.V. Training (circle no. of courses) 0 1 2 3 4 or more
5. Additional A-V experiences (circle)
   A. Workshops B. On the job C. Other _____

I. Media--Acquaintance, Utilization and Interest in Studying. Indicate your acquaintance, utilization and interest in studying various media.

A. Acquaintance: Place a check (✓) by those items with which you are familiar.

B. Utilization: Please circle the number which most closely describes the amount of course content presented by the given medium. Responses have the following connotations:

1. 0% Medium is not presently used in my courses.
2. 1-25% 1-25% of the content for my courses is presented by this medium.
3. 26-50% 26-50% of the content for my courses is presented by this medium.
4. 51-75% 51-75% of the content for my courses is presented by this medium.
5. 76-100% 76-100% of the content for my courses is presented by this medium.

C. Interest in Studying: After you have rated your use of media, indicate your interest in acquiring more competency in using the medium. Circle one of the following ratings:

1. None. I have no interest in studying this medium.
2.
3. Moderate. I would not mind studying this medium.
4.
5. High. I am very interested in acquiring more competency in this medium.
6. Already Proficient. I feel that I have enough skill with the use of this medium to satisfy my teaching needs.

Sample: Electric board (✓) (1) 2 3 4 5 1 2 3 4 (5) 6
The above response would indicate that you are acquainted with electric boards, do not presently use them in your course, and would like more instruction on them.

Go to the next column.

Media	Acquaintance	Utiliz. (0% 1-25% 26-50% 51-75% 76-100%)	Interest in Studying (None Mod. High Already Prof.)
1. Overhead transparencies	( )	1 2 3 4 5	1 2 3 4 5 6
2. Filmstrips	( )	1 2 3 4 5	1 2 3 4 5 6
3. 2" x 2" slides	( )	1 2 3 4 5	1 2 3 4 5 6
4. 8mm or super 8mm film	( )	1 2 3 4 5	1 2 3 4 5 6
5. 16 mm sound film	( )	1 2 3 4 5	1 2 3 4 5 6
6. Recorded disc (records)	( )	1 2 3 4 5	1 2 3 4 5 6
7. Audio-tape recording (cassette or reel to reel)	( )	1 2 3 4 5	1 2 3 4 5 6
8. Video-tape recording (television)	( )	1 2 3 4 5	1 2 3 4 5 6
9. Slide tape series	( )	1 2 3 4 5	1 2 3 4 5 6
10. Sound-filmstrips series (filmstrips & audio-tape or record)	( )	1 2 3 4 5	1 2 3 4 5 6
11. Multi-media presentations (3 or more)	( )	1 2 3 4 5	1 2 3 4 5 6
12. Auto-tutorial systems (teaching machines or A-T labs.)	( )	1 2 3 4 5	1 2 3 4 5 6
13. Computer assisted instruction	( )	1 2 3 4 5	1 2 3 4 5 6
14. Printed texts	( )	1 2 3 4 5	1 2 3 4 5 6
15. Periodical publica.	( )	1 2 3 4 5	1 2 3 4 5 6
16. Reference books	( )	1 2 3 4 5	1 2 3 4 5 6
17. Microfilm or microfiche (microforms)	( )	1 2 3 4 5	1 2 3 4 5 6
18. Repair manuals, job sheets, lists of procedures	( )	1 2 3 4 5	1 2 3 4 5 6
19. Programmed or packaged instruction manuals	( )	1 2 3 4 5	1 2 3 4 5 6
20. Magnetic Board	( )	1 2 3 4 5	1 2 3 4 5 6
21. Electric Board	( )	1 2 3 4 5	1 2 3 4 5 6
22. Felt or flannel board	( )	1 2 3 4 5	1 2 3 4 5 6
23. Displays	( )	1 2 3 4 5	1 2 3 4 5 6
24. Still pictures (opaque projection, bulletin boards, dry-mounted materials)	( )	1 2 3 4 5	1 2 3 4 5 6

Go to the next page.

Media	acquaintance	Utiliz. 0%	1-25%	26-50%	51-75%	76-100%	Interest in Studying None	Mod	High	Already Prof.
25. Models or mock-ups (not including "real-life" equipment)	( )	1	2	3	4	5	1	2 3 4	5	6
26. Actual equipment and/or materials used in the field	( )	1	2	3	4	5	1	2 3 4	5	6
27. Learning games	( )	1	2	3	4	5	1	2 3 4	5	6
28. Simulation exercises	( )	1	2	3	4	5	1	2 3 4	5	6
29. Specimen (need not be scientific)	( )	1	2	3	4	5	1	2 3 4	5	6
30. Film catalogs	( )	1	2	3	4	5	1	2 3 4	5	6
31. Card catalog	( )	1	2	3	4	5	1	2 3 4	5	6
32. Periodical Index ...	( )	1	2	3	4	5	1	2 3 4	5	6
33. ERIC	( )	1	2	3	4	5	1	2 3 4	5	6
34. Other, specify ____ _____	( )	1	2	3	4	5	1	2 3 4	5	6
35. Other, specify ____ _____	( )	1	2	3	4	5	1	2 3 4	5	6
36. Other, specify ____ _____	( )	1	2	3	4	5	1	2 3 4	5	6

II. Factors Which Influence Media Use. Please circle the number which most closely describes your feelings toward the following aspects of media services in your district as they relate to your use of media. Responses mean the following:

1. GI - Is a major reason for not using media.
2. I - Inhibits the use of media, but is not a major problem.
3. NI - Has no influence on the use of media.
4. E - Encourages the use of media, but is not a major influence.
5. GE - Greatly encourages the use of media.

Factors	GI	I	NI	E	GE	Comments
1. Equipment working when you need to use it	1	2	3	4	5	
2. Amount of software (films, slides, etc.) available for your courses	1	2	3	4	5	
3. Decentralization of software (located near your classroom) ..	1	2	3	4	5	
4. Centralization of software (located in main office or media center)	1	2	3	4	5	
5. Procedures for borrowing or renting software not owned by your district	1	2	3	4	5	
6. Procedures for purchasing software	1	2	3	4	5	
7. The availability of facilities for you to produce software for your courses	1	2	3	4	5	
8. Equipment being where you want it when you want it	1	2	3	4	5	
9. The speed at which equipment sent out for repair is returned to operation	1	2	3	4	5	
10. The dependability of the media production staff on having projects completed on schedule	1	2	3	4	5	
11. Assistance received from the audio-visual staff in fitting media into your course	1	2	3	4	5	
12. The appropriateness of available media to your class and students	1	2	3	4	5	
13. The appropriateness of classrooms, labs and shops for using media (lighting, electrical outlets, etc.)	1	2	3	4	5	
14. The amount of hardware (projectors, screens, etc.) available	1	2	3	4	5	

14a. If 1 or 2, list items needed.

15. Location of hardware 1 2 3 4 5

15a. Hardware you use most frequently is presently located (check all appropriate locations)
- ( ) 1. In your department
- ( ) 2. On your floor
- ( ) 3. In your building
- ( ) 4. In a central office

16. Standardization of equipment (all 16mm projectors are same brand) 1 2 3 4 5

16a. Is the equipment presently standardized?
1. Yes 2. No

17. Other, specify _____ 1 2 3 4 5

Go to the next page.

Go to the next column.

III. Planning and Preparation of Media.

1. How much time did you spend last semester planning for, selecting, and/or producing media for use in your classes?
   1. Less than 1 hr./wk.
   2. 1-3 hrs./wk.
   3. 3-5 hrs./2k.
   4. 5-10 hrs./wk.
   5. More than 10 hrs./wk.

2. What percent of this was done during your regular preparation time or normal teaching day?
   1. 25% 2. 50% 3. 75% 4. 100%

3. What percent was done "after hours" or in addition to your normal work week?
   1. 25% 2. 50% 3. 75% 4. 100%

4. Were you given additional compensation for the work done in 3 above?
   1. Yes 2. No

5. Would you like additional instruction in planning your instruction in order to better use media?
   1. Yes 2. No

IV. Additional Comments. In the space below, please add any comments you may have regarding factors encouraging or inhibiting the use of media in your district which were not covered in the survey.

APPENDIX A, NO. 2

MEDIA UTILIZATION SURVEY

Condensed Form G (green)

MEDIA UTILIZATION SURVEY

Introduction: The following survey was designed to determine the media used by VTAE teachers, identify factors that influence their use of media, and determine teacher interests in studying various media. Please be frank, as we are primarily interested in helping you obtain the type of media program that will be of the most benefit to you.

1. School _____ Position _____

2. Years of teaching experience _____

3. Highest degree held _____

4. A. V. Training (circle no. of courses)
   0 1 2 3 4 or more

5. Additional A-V experiences (circle)
   A. Workshops B. On the job C. Other _____

I. Media--Acquaintance, Utilization and Interest in Studying. Indicate your acquaintance, utilization and interest in studying various media.

A. Acquaintance: Place a check (✓) by those items with which you are familiar.

B. Utilization: Please circle the number which most closely describes the amount of course content presented by the given medium. Responses have the following connotations:

1. 0% Medium is not presently used in my courses.
2. 1-25% 1-25% of the content for my courses is presented by this medium.
3. 26-50% 26-50% of the content for my courses is presented by this medium.
4. 51-75% 51-75% of the content for my courses is presented by this medium.
5. 76-100% 76-100% of the content for my courses is presented by this medium.

C. Interest in Studying: After you have rated your use of media, indicate your interest in acquiring more competency in using the medium. Circle one of the following ratings:

1. None. I have no interest in studying this medium.
2.
3. Moderate. I would not mind studying this medium.
4.
5. High. I am very interested in acquiring more competency in this medium.
6. Already Proficient. I feel that I have enough skill with the use of this medium to satisfy my teaching needs.

Sample:
Electric board (✓) ① 2 3 4 5 1 2 3 4 ⑤ 6

The above response would indicate that you are acquainted with electric boards, do not presently use them in your course, and would like more instruction on them.

Media	Acquaintance	Utiliz. 0% 1-25% 26-50% 51-75% 76-100%	Interest in Studying None Mod High	Already Prof.
1. Filmstrips	( )	1 2 3 4 5	1 2 3 4 5	6
2. 8mm or super 8mm film	( )	1 2 3 4 5	1 2 3 4 5	6
3. Recorded disc (records)	( )	1 2 3 4 5	1 2 3 4 5	6
4. Video-tape recording (TV)	( )	1 2 3 4 5	1 2 3 4 5	6
5. Sound-filmstrips series (filmstrips & audio-tape or record)	( )	1 2 3 4 5	1 2 3 4 5	6
6. Auto-tutorial systems (teaching machines or A-T labs.)	( )	1 2 3 4 5	1 2 3 4 5	6
7. Printed texts	( )	1 2 3 4 5	1 2 3 4 5	6
8. Reference books	( )	1 2 3 4 5	1 2 3 4 5	6
9. Repair manuals, job sheets, lists of procedures	( )	1 2 3 4 5	1 2 3 4 5	6
10. Magnetic board	( )	1 2 3 4 5	1 2 3 4 5	6
11. Felt or flannel board	( )	1 2 3 4 5	1 2 3 4 5	6
12. Still pictures (opaque projection, bulletin boards, dry-mounted materials)	( )	1 2 3 4 5	1 2 3 4 5	6
13. Actual equipment and/or materials used in the field	( )	1 2 3 4 5	1 2 3 4 5	6
14. Simulation exercises	( )	1 2 3 4 5	1 2 3 4 5	6
15. Film catalogs	( )	1 2 3 4 5	1 2 3 4 5	6
16. Periodical Index	( )	1 2 3 4 5	1 2 3 4 5	6
17. Other, specify _____	( )	1 2 3 4 5	1 2 3 4 5	6
18. Other, specify _____	( )	1 2 3 4 5	1 2 3 4 5	6

Go to the next column.

Go to the next page.

II. Factors Which Influence Media Use. Please circle the number which most closely describes your feelings toward the following aspects of media services in your district as they relate to your use of media. Responses mean the following:

1. GI - Is a major reason for not using media.
2. I - Inhibits the use of media, but is not a major problem.
3. NI - Has no influence on the use of media.
4. E - Encourages the use of media, but is not a major influence.
5. GE - Greatly encourages the use of media.

Factors	GI	I	NI	E	GE	Comments
1. Amount of software (films, slides, etc.) available for your courses	1	2	3	4	5	
2. Centralization of software (located in main office or media center)	1	2	3	4	5	
3. Procedures for purchasing software	1	2	3	4	5	
4. Equipment being where you want it when you want it	1	2	3	4	5	
5. The dependability of the media production staff on having projects completed on schedule	1	2	3	4	5	
6. The appropriateness of available media to your class and students	1	2	3	4	5	
7. The amount of hardware (projectors, screens, etc.) available	1	2	3	4	5	
7a. If 1 or 2, list items needed.						
8. Standardization of equipment (all 16mm projectors are same brand)	1	2	3	4	5	
8a. Is the equipment presently standardized? 1. Yes 2. No						
9. Other, specify _____						
_____	1	2	3	4	5	

Go to the next column.

III. Planning and Preparation of Media.

1. How much time did you spend last semester planning for, selecting, and/or producing media for use in your classes?

   1. Less than 1 hr./wk.
   2. 1-3 hrs./wk.
   3. 3-5 hrs./wk.
   4. 5-10 hrs./wk.
   5. More than 10 hrs./wk.

2. What percent of this was done during your regular preparation time or normal teaching day?

   1. 25% 2. 50% 3. 75% 4. 100%

3. What percent was done "after hours" or in addition to your normal work week?

   1. 25% 2. 50% 3. 75% 4. 100%

4. Were you given additional compensation for the work done in 3 above?

   1. Yes 2. No

5. Would you like additional instruction in planning your instruction in order to better use media?

   1. Yes 2. No

IV. Additional Comments. In the space below, please add any comments you may have regarding factors encouraging or inhibiting the use of media in your district which were not covered in the survey.

Thank you for responding to this survey.

David Igl
Center for Vocational, Technical and Adult Education
University of Wisconsin-Stout
Menomonie, Wisconsin 54751

APPENDIX A, NO. 3

MEDIA UTILIZATION SURVEY

Condensed Form B (blue)

MEDIA UTILIZATION SURVEY

Introduction: The following survey was designed to determine the media used by VTAE teachers, identify factors that influence their use of media, and determine teacher interests in studying various media. Please be frank, as we are primarily interested in helping you obtain the type of media program that will be of the most benefit to you.

1. School _____ Position _____

2. Years of teaching experience _____

3. Highest degree held _____

4. A. V. Training (circle no. of courses)
   0 1 2 3 4 or more

5. Additional A-V experiences (circle)
   A. Workshops B. On the job C. Other _____

I. Media--Acquaintance, Utilization and Interest in Studying. Indicate your acquaintance, utilization and interest in studying various media.

A. Acquaintance: Place a check (✓) by those items with which you are familiar.

B. Utilization: Please circle the number which most closely describes the amount of course content presented by the given medium. Responses have the following connotations:

1. 0% Medium is not presently used in my courses.
2. 1-25% 1-25% of the content for my courses is presented by this medium.
3. 26-50% 26-50% of the content for my courses is presented by this medium.
4. 51-75% 51-75% of the content for my courses is presented by this medium.
5. 76-100% 76-100% of the content for my courses is presented by this medium.

C. Interest in Studying: After you have rated your use of media, indicate your interest in acquiring more competency in using the medium. Circle one of the following ratings:

1. None. I have no interest in studying this medium.
2.
3. Moderate. I would not mind studying this medium.
4.
5. High. I am very interested in acquiring more competency in this medium.
6. Already Proficient. I feel that I have enough skill with the use of this medium to satisfy my teaching needs.

Sample:
Electric board (✓) (1) 2 3 4 5 1 2 3 4 (5) 6

The above response would indicate that you are acquainted with electric boards, do not presently use them in your course, and would like more instruction on them.

Go to the next column.

Media	Acquaintance	Utilization: 0%	1-25%	26-50%	51-75%	76-100%	Interest in Studying: None			Moderate		High		Already Prof.
1. Overhead transparencies	( )	1	2	3	4	5	1	2	3	4	5			6
2. 2" x 2" slides	( )	1	2	3	4	5	1	2	3	4	5			6
3. 16mm sound film	( )	1	2	3	4	5	1	2	3	4	5			6
4. Audio-tape recording (cassette or reel to reel)	( )	1	2	3	4	5	1	2	3	4	5			6
5. Slide tape series	( )	1	2	3	4	5	1	2	3	4	5			6
6. Multi-media presentations (3 or more)	( )	1	2	3	4	5	1	2	3	4	5			6
7. Computer assisted instruction	( )	1	2	3	4	5	1	2	3	4	5			6
8. Periodical publications	( )	1	2	3	4	5	1	2	3	4	5			6
	( )	1	2	3	4	5	1	2	3	4	5			6
9. Microfilm or microfiche (microforms)	( )	1	2	3	4	5	1	2	3	4	5			6
10. Programmed or packaged instruction manuals	( )	1	2	3	4	5	1	2	3	4	5			6
11. Electric board	( )	1	2	3	4	5	1	2	3	4	5			6
12. Displays	( )	1	2	3	4	5	1	2	3	4	5			6
13. Models or mock-ups (not including "real-life" equipment)	( )	1	2	3	4	5	1	2	3		5			6
14. Learning games	( )	1	2	3	4	5	1	2	3	4	5			6
15. Specimen (need not be scientific)	( )	1	2	3	4	5	1	2	3	4	5			6
16. Card catalog	( )	1	2	3	4	5	1	2	3	4	5			6
17. ERIC	( )	1	2	3	4	5	1	2	3	4	5			6
18. Other, specify _____	( )	1	2	3	4	5	1	2	3	4	5			6
19. Other, specify _____	( )	1	2	3	4	5	1	2	3	4	5			6
20. Other, specify _____	( )	1	2	3	4	5	1	2	3	4	5			6

Go to the next page.

II. Factors Which Influence Media Use. Please circle the number which most closely describes your feelings toward the following aspects of media services in your district as they relate to your use of media. Responses mean the following:

1. GI - Is a major reason for not using media.
2. I - Inhibits the use of media, but is not a major problem.
3. NI - Has no influence on the use of media.
4. E - Encourages the use of media, but is not a major influence.
5. GE - Greatly encourages the use of media.

Factors	GI	I	NI	E	GE	Comments
1. Equipment working when you need to use it	1	2	3	4	5	
2. Decentralization of software (located near your classroom)	1	2	3	4	5	
3. Procedures for borrowing or renting software not owned by your district ...	1	2	3	4	5	
4. The availability of facilities for you to produce software for your courses	1	2	3	4	5	
5. The speed at which equipment sent out for repair is returned to operation	1	2	3	4	5	
6. Assistance received from the audio-visual staff in fitting media into your course	1	2	3	4	5	
7. The appropriateness of available media to your class and students	1	2	3	4	5	
8. Location of hardware	1	2	3	4	5	

8a. Hardware you use most frequently is presently located (check all appropriate locations)
( ) 1. In your department
( ) 2. On your floor
( ) 3. In your building
( ) 4. In a central office

9. Other, specify _____

_____ 1 2 3 4 5

Go to the next column.

III. Planning and Preparation of Media.

1. How much time did you spend last semester planning for, selecting, and/or producing media for use in your classes?

1. Less than 1 hr./wk.
2. 1-3 hrs./wk.
3. 3-5 hrs./wk.
4. 5-10 hrs./wk.
5. More than 10 hrs./wk.

2. What percent of this was done during your regular preparation time or normal teaching day?

1. 25% 2. 50% 3. 75% 4. 100%

3. What percent was done "after hours" or in addition to your normal work week?

1. 25% 2. 50% 3. 75% 4. 100%

4. Were you given additional compensation for the work done in 3 above?

1. Yes 2. No

5. Would you like additional instruction in planning your instruction in order to better use media?

1. Yes 2. No

IV. Additional Comments. In the space below, please add any comments you may have regarding factors encouraging or inhibiting the use of media in your district which were not covered in the survey.

Thank you for responding to this survey.

David Igl
Center for Vocational, Technical and Adult Education
University of Wisconsin-Stout
Menomonie, Wisconsin 54751

APPENDIX B

VALIDATION QUESTIONNAIRE

VALIDATION QUESTIONNAIRE

Circle the number that indicates your attitude toward Educational Technology.

		Favorable	Mildly Favorable	Balanced	Mildly Favorable	Favorable	
1)	Random Structure	2	1	0	1	2	System
2)	Teaching	2	1	0	1	2	Learning
3)	Objective Evaluation	2	1	0	1	2	Subjective Evaluation
4)	Validated	2	1	0	1	2	Invalidated
5)	Rigid	2	1	0	1	2	Adaptive
6)	Process	2	1	0	1	2	Machines
7)	Single Learning Source	2	1	0	1	2	Multiple Learning Source
8)	Realistic	2	1	0	1	2	Unrealistic
9)	Effective	2	1	0	1	2	Uneffective

APPENDIX C

WORKSHOP CRITIQUE

Workshop Critique

Circle the number which best describes your feelings toward the material presented and activities provided in each of the following items of the agenda. You will have opportunity for written comments at the end of this critique.

Day 1

A. A Systems Approach to Instructional Decision Making.

1.	Realistic	1 2 3 4 5	Unrealistic
2.	Motivating	1 2 3 4 5	Discouraging
3.	Effective	1 2 3 4 5	Ineffective
4.	Helpful	1 2 3 4 5	Useless
5.	Time well spent	1 2 3 4 5	Waste of time

B. Instructor Presentations. (1st day)

1.	Realistic	1 2 3 4 5	Unrealistic
2.	Motivating	1 2 3 4 5	Discouraging
3.	Effective	1 2 3 4 5	Ineffective
4.	Helpful	1 2 3 4 5	Useless
5.	Time well spent	1 2 3 4 5	Waste of time

C. Characteristics of Media.

1.	Realistic	1 2 3 4 5	Unrealistic
2.	Motivating	1 2 3 4 5	Discouraging
3.	Effective	1 2 3 4 5	Ineffective
4.	Helpful	1 2 3 4 5	Useless
5.	Time well spent	1 2 3 4 5	Waste of time

D. Work Period. (1st day)

1.	Realistic	1 2 3 4 5	Unrealistic
2.	Motivating	1 2 3 4 5	Discouraging
3.	Effective	1 2 3 4 5	Ineffective
4.	Helpful	1 2 3 4 5	Useless
5.	Time well spent	1 2 3 4 5	Waste of time

Day 2

E. Designing a Systematic Approach . . . of a Management Strategy.

1.	Realistic	1 2 3 4 5	Unrealistic
2.	Motivating	1 2 3 4 5	Discouraging
3.	Effective	1 2 3 4 5	Ineffective
4.	Helpful	1 2 3 4 5	Useless
5.	Time well spent	1 2 3 4 5	Waste of time

F. Utilization of Instruction Media Laboratory Services.

1.	Realistic	1 2 3 4 5	Unrealistic
2.	Motivating	1 2 3 4 5	Discouraging
3.	Effective	1 2 3 4 5	Ineffective
4.	Helpful	1 2 3 4 5	Useless
5.	Time well spent	1 2 3 4 5	Waste of time

G. Reaction to Survey Instrument.

1.	Realistic	1 2 3 4 5	Unrealistic
2.	Motivating	1 2 3 4 5	Discouraging
3.	Effective	1 2 3 4 5	Ineffective
4.	Helpful	1 2 3 4 5	Useless
5.	Time well spent	1 2 3 4 5	Waste of time

Day 3

H. Small Group Presentations.

1.	Realistic	1 2 3 4 5	Unrealistic
2.	Motivating	1 2 3 4 5	Discouraging
3.	Effective	1 2 3 4 5	Ineffective
4.	Helpful	1 2 3 4 5	Useless
5.	Time well spent	1 2 3 4 5	Waste of time

In the following space please write any comments you may have regarding the workshop.

Positive Comments-

Negative Comments-

APPENDIX D

PROGRAMMED TEXT

"Selecting the Right Materials for Your Course"

SELECTING THE RIGHT MATERIALS FOR YOUR COURSE

By David Igl

University of Wisconsin - Stout

Menomonie, Wisconsin

June 1972

Teachers interested in implementing individualized instruction will find their job simplified by using instructional media for presentation of course content. In order to do this, however, it is necessary for them to have a basis for selection of media so time will not be lost searching for or producing materials which will not serve the intended purpose. The following package will offer guidelines in selecting media to help you teach your subject. It will also give you practice in selecting media for given situations.

Definitions

Media - Any form of printed or audio-visual aid used to present information or improve student competance in a given objective.

Objectives

Upon completing this package you will be able to do the following:

1. Identify eight factors to consider in the selection of instructional media and give a description of each.
2. Given a list of ten types of media classify each with respect to whether or not it possesses capability for the eight factors listed in objective one. You may use references.
3. For one aspect of your course which is of your own selection determine whether each factor covered in objective one is critical for your situation and select two types of media based on those critical factors.

If you feel you can accomplish these objectives turn to page 20 for the final test on this package.

If not turn to page 4 for objective one.

Objective 1

Without referances you will be able to identify eight factors to consider in the selection of instructional media and give a description of each.

You may feel confient in performing this objective. If so turn to page 9 for the self-test.

If you need more work in this area do the assignments below.

Assignment 1

Read the material on pages 5 to 8 of this package then comple e assignment 2.

Assignment 2

Find another person who is at the same point as you in the package. Have him name one factor. When he does so you describe what is meant by the factor and tell, if you can, of one apect of your course which this factor may be of importance. Your partner may wish to comment on your response. Then you name another factor and reverse the procedure. Continue until all eight factors have been discussed. Do not spend undue time on any one factor. Upon completion of this assignment turn to page 9 for the self-test on this section.

Factors to Consider in Selection of Media

In the next few pages, we will discuss eight factors which may influence your choice in selection of media. As you read this information think of how it may apply to your course and/or your situation. The factors governing choice of media are:

1. Instructor or student use
2. Color
3. Motion
4. Availability
5. Ease of production
6. Sound
7. Print
8. Capability of feedback to students

1. Instructor or student use.

Although many types of media may work equally well when being used by either the instructor in large group presentation or by individual learner there are some forms which lend themselves better to one application or the other. Large group presentations usually lend themselves to projected materials or large visuals with or without accompanying sound. While these same materials also work well for individual work, there are some forms of media which can only be used by a single person at a time. These include types which are limited in image size or which interact on a one-to-one basis with the student, such as electric boards, programmed instruction teaching machines or computer assisted instruction.

2. Color

While color is pleasing to look at and may provide some motivation it is not always a necessary factor in media choice. In deciding whether color is necessary in your media, consider the following points:

A. Is color an integral part of the process or referred to in the narration? Examples of this would be a lesson on heat treatment of metal, during which the metal must be quenched at the point where it cools to a "straw" color, or one on identification of potato blight in vocational agriculture.

B. Can the point be more clearly shown by reference to a particular color? This may involve illustration of electronic circuits in which the components or sub-circuit being discussed is shown as a different color than the other parts of the schematic.

3. Motion

There are many cases in which motion is a critical factor in explaining a process. The reason may be one as simple as indicating the direction to turn a nut on a bolt to one as complex as illustrating correct procedures for assembly of a highly technical piece of machinery. Motion is particularly useful in presenting correct procedures for performing skills.

4. Availability

In selecting instructional materials one needs to consider availability from two main standpoints.

A. Amount and suitability of existing commercially prepared media.

B. Availability with respect to time. In this respect, the author greatly favors locally owned materials as opposed to borrowed or rented software.

5. Ease of production

If commercially prepared materials are not available for your purposes, this may be a big factor in your selection of media. Here again there are two main considerations.

A. The sophistication of your local media services programs. This takes into account the size and technical competence of your media staff and the facilities at your disposal.

B. Complexity of the project and amount of lead time needed. Included in this consideration are length of presentation, any special effects needed, and time needed for assembly of resources and processing of film.

For help in this area consult your media specialist.

6. Sound

Most teaching has traditionally been done through sound in the form of verbal presentation. However, what is is not always right. When making decisions on this factor, stop and ask yourself this question--Is it better to tell the student about this or show him? There are subjects and concepts which lend themselves well to each method, but generally performance or psychomotor skills are best suited to nonverbal, while congnitive or thought related concepts are well served by verbal.

7. Print

Because some students, either because of reading problems or personal preference, do not benefit from print materials, it may be necessary for you

to include information in both print and nonprint forms. This allows students free choice in the method they use to gain the knowledge given. Another consideration here is the inclus on of both print and nonprint messages simultaneously to further reinforce student learning.

8. Feedback to students

A final consideration in media selection deals with the ability of media to provide self-tests to students and give them feedback on their responses. Media which possesses this attribute goes beyond the traditional presentation approach and provides for meaningful interaction toward the achievement of an objective. Examples of this may range from a simple slide-type series which asks a question and gives the correct answer, to programmed texts and computers which analyze student responses and prescribe additional instruction.

Self-Test Objective 1

In the eight blanks below identify eight factors to consider in selecting media and give a brief description of each.

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

7. _____

_____

8. _____

_____

Check your responses with the text. Make needed corrections and go on to page 10 for objective 2.

Objective 2

Given a test of ten types of media classify each with respect to whether or not it posseses capability for the eight factors listed in objective one. You may use references.

If you feel you can accomplish this objective turn to the self - test on page 16.

If you would like additional instruction on this objective study and do the assignment one below.

Assignment 1

On pages 11 to 15 you will find a list of media and a classification of their status with respect to the eight factors outlined in objective one Factors will be marked by a +, -, or 0 with the following connotations.

+ Media type will be helpful in satisfying the factor.

- Media type does not possess capabilities for this factor or would cause problems.

0 There is no way of determining association between media and factor, or there are special considerations.

Study the information briefly and go on to the self-test for this objective.

FACTOR	STATUS
Overhead Transparencies	
1. Instructor or student use	0
2. Color	+
3. Motion (a limited degree of motion is available)	0
4. Availability	+
5. Ease of production	+
6. Sound	-
7. Print	+
8. Capability of feedback	-

FACTOR	STATUS
Filmstrips	
1. Instructor or student use	+
2. Color	+
3. Motion	-
4. Availability	+
5. Ease of production	0
6. Sound	-
7. Print	+
8. Capability of feedback	+

2 x 2 Slides	
1. Instructor or student use	+
2. Color	+
3. Motion	-
4. Availability	+
5. Ease of production	+
6. Sound	-
7. Print	+
8. Capability of feedback	+

Super 8mm	
1. Instructor or student use	+
2. Color	+
3. Motion	+
4. Availability	+
5. Ease of production	-
6. Sound	0
7. Print	+
8. Capability of feedback	0

FACTOR	STATUS
16mm Film	
1. Instructor or student use	+
2. Color	+
3. Motion	+
4. Availability	-
5. Ease of production	-
6. Sound	+
7. Print	+
8. Capability of feedback	0

FACTOR	STATUS
Records	
1. Instructor or student use	+
2. Color	-
3. Motion	-
4. Availability	+
5. Ease of production	-
6. Sound	+
7. Print	-
8. Capability of feedback	0

Audio-tape	
1. Instructor or student use	+
2. Color	-
3. Motion	-
4. Availability	+
5. Ease of production	+
6. Sound	+
7. Print	-
8. Capability of feedback	+

Television	
1. Instructor or student use	+
2. Color (may be costly)	0
3. Motion	+
4. Availability	+
5. Ease of production	+
6. Sound	+
7. Print	+
8. Capability of feedback	0

FACTOR	STATUS
Slide-tape Series	
1. Instructor or student use	+
2. Color	+
3. Motion	-
4. Availability	+
5. Ease of production	+
6. Sound	+
7. Print	+
8. Capability of feedback	+

FACTOR	STATUS
Sound Filmstrips	
1. Instructor or student use	+
2. Color	+
3. Motion	-
4. Availability	+
5. Ease of production	+
6. Sound	+
7. Print	+
8. Capability of feedback	+

Teaching Machines	
1. Instructor or student use	-
2. Color	-
3. Motion	-
4. Availability	+
5. Ease of production	+
6. Sound	+
7. Print	+
8. Capability of feedback	+

Computer Assisted Instruction	
1. Instructor or student use	-
2. Color	-
3. Motion	-
4. Availability	-
5. Ease of production	-
6. Sound	-
7. Print	+
8. Capability of feedback	+

FACTOR	STATUS
Printed Materials	
Texts, Periodicals, Reference Books	
1. Instructor or student use	-
2. Color	+
3. Motion	-
4. Availability	+
5. Ease of production	-
6. Sound	-
7. Print	+
8. Capability of feedback	+

FACTOR	STATUS
Magnetic, Felt or Flannel Board	
1. Instructor or student use	+
2. Color	+
3. Motion	0
4. Availability	+
5. Ease of production	+
6. Sound	0
7. Print	+
8. Capability of feedback	0

Electric Board	
1. Instructor or student use	-
2. Color	-
3. Motion	-
4. Availability	+
5. Ease of production	+
6. Sound	-
7. Print	+
8. Capability of feedback	+

Mounted Materials	
1. Instructor or student use	-
2. Color	+
3. Motion	-
4. Availability	+
5. Ease of production	+
6. Sound	-
7. Print	+
8. Capability of feedback	0

FACTOR	STATUS
Models or Mock-ups	
1. Instructor or student use	+
2. Color	+
3. Motion	+
4. Availability	+
5. Ease of production	+
6. Sound	-
7. Print	+
8. Capability of feedback	-

FACTOR	STATUS
Games and Simulation	
1. Instructor or student use	+
2. Color	-
3. Motion	+
4. Availability	+
5. Ease of production	+
6. Sound	0
7. Print	-
8. Capability of feedback	+

Self - Test Objective 2

Below are 10 media types. For each type classify each factor as + (media will be helpful in satisfying the facts) - (media type does not possess capabilities for this factor or would cause problems), 0 (there is no way of determining the association between media and factors).

Mark your answer in the blanks to the left of each factor. You may use references.

Computer Assisted Instruction

___1. Instructor or Student Use

___2. Color

___3. Motion

___4. Availability

___5. Ease of Productions

___6. Sound

___7. Print

___8. Capability of feedback

Answers on page 13

Models on Mock - Ups

___1. Instructor or Student Use

___2. Color

___3. Motion

___4. Availability

___5. Ease of Productions

___6. Sound

___7. Print

___8. Capability of feedback

Answers on page 15

Overhead Transparancies

___1. Instructor or Student use

___2. Color

___3. Motion

___4. Availability

___5. Ease of productions

___6. Sound

___7. Print

___8. Capability of feedback

Answers on page 11

Sound Filmstrips

___1. Instructor or Student use

___2. Color

___3. Motion

___4. Availability

___5. Ease of productions

___6. Sound

___7. Print

___8. Capability of feedback

Answers on page 13

2x2 Slides

___1. Instructor or Student use

___2. Color

___3. Motion

___4. Availability

___5. Ease of Productions

___6. Sound

___7. Print

___8. Capability of feedback

Answers on page 11

Video-tape (Television)

___1. Instructor or Student use

___2. Color

___3. Motion

___4. Availability

___5. Ease of Productions

___6. Sound

___7. Print

___8. Capability of feeback

Answers on page 12

8 Super 8 Film

___1. Instructor or Student use

___2. Color

___3. Motion

___4. Availability

___5. Ease of Productions.

___6. Sound

___7. Print

___8. Capability of feedback

Answers on page 11

Audio Tape - Recordings

___1. Instructor or Student use

___2. Color

___3. Motion

___4. Availability

___5. Ease of Productions

___6. Sound

___7. Print

___8. Capability of feedback

Answers on page 12

Filmstrips

___1. Instructor or Student use

___2. Color

___3. Motion

___4. Availability

___5. Ease of Productions

___6. Sound

___7. Print

___8. Capability of feedback

Answers on page 11

Slide - Tape Series

___1. Instructor or Student use

___2. Color

___3. Motion

___4. Availability

___5. Ease of Productions

___6. Sound

___7. Print

___8. Capability of feedback

Answers on page 13

.r you have not already done so check your answers for objective two on the pages given. Since you could use reference in this exercise there should have been little problems. It may, however, be well for you to keep this booklet for future reference. Go on to page 20 for instruction on objective 3.

Objective 3

For one aspect of your course which is of your own selection you will determine whether each factor covered in objective one is critical for you situation and select two types of media based on those factors.

The activity, evaluation and product of this part of the package will comprise the criterion test for the entire package and should yield a useable product for the improvement of your course. For this reason it is necessary for everyone to go through the following assignments.

Turn to page 21.

On a piece of paper identify a portion of your course which you would like to improve through the use of instructional media. Next, consider each of the eight factors covered in level one and indicate whether or not each factor would be critical to you and your situation. Give a brief statement of reasons for your choice. Then, on the basis of the factors you indicated as critical, pick at least two types of media which may satisfy your requirements. Select a partner and discuss each of your products in turn, giving reasons for your choices and offering suggestions for improvement. Make any needed corrections and have your completed materials typed up and hand it in to your instructor. This will comprise the criterion test for this package. Please use the following outlines:

A. Statement of what portion of course media will be used for.

B. Analysis of factors

C. Media selected and why.

APPENDIX E

DATA COLLECTED FROM

MEDIA UTILIZATION SURVEY

DISTRICT 12

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Overhead Transparencies	90	5	1	.20	.53	.18	.08	.00	5	.04	.10	.28	.04	.15	.36
				Mdn = 2.06			IQR = .99								
Filmstrips	91	4	2	.25	.60	.10	.02	.01	9	.10	.06	.30	.08	.11	.32
				Mdn = 1.90			IQR = .84								
2" x 2" Slides	82	13	9	.45	.40	.03	.06	.03	8	.12	.06	.26	.09	.17	.27
				Mdn = 1.61			IQR = 1.17								
8mm or Super 8mm film	72	23	12	.61	.30	.04	.03	.00	8	.04	.09	.26	.12	.33	.13
				Mdn = 1.31			IQR = 1.04								
16mm Sound film	85	10	2	.25	.65	.06	.01	.01	7	.06	.15	.21	.06	.19	.29
				Mdn = 1.86			IQR = .78								
Recorded disc (records)	80	15	12	.65	.26	.06	.01	.01	11	.36	.13	.14	.05	.05	.23
				Mdn = 1.26			IQR = .99								

DISTRICT 12

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Audio-tape recording (cassette or reel to reel)	81	14	8	.31	.47	.12	.02	.06	5	.04	.02	.26	.11	.32	.23
				Mdn = 1.90			IQR = 1.12								
Video-tape recording (tv)	64	31	14	.75	.19	.01	.00	.03	6	.04	.06	.25	.05	.53	.03
				Mdn = 1.16			IQR = .66								
Slide tape series	67	28	19	.55	.31	.07	.01	.03	11	.09	.08	.29	.16	.20	.15
				Mdn = 1.40			IQR = 1.17								
Sound-filmstrips series (filmstrips & audiotape or record)	74	21	14	.56	.33	.06	.02	.01	10	.09	.11	.28	.09	.24	.16
				Mdn = 1.38			IQR = 1.10								
Multi-media presentations (3 or more)	43	52	27	.66	.23	.07	.02	.00	20	.06	.18	.36	.12	.26	.00
				Mdn = 1.25			IQR = .99								

DISTRICT 12

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Auto-tutorial systems (teaching machines or A-T labs)	49	46	21	.82	.05	.05	.01	.05	15	.20	.10	.23	.08	.30	.07
				Mdn = 1.10			IQR = .60								
Computer assisted instruction	25	70	27	.94	.05	.00	.00	.00	19	.28	.17	.21	.09	.23	.00
				Mdn = 1.03			IQR = .53								
Printed texts	88	7	2	.05	.24	.22	.20	.26	8	.17	.09	.12	.11	.02	.47
				Mdn = 3.38			IQR = 2.27								
Periodical publications	86	9	4	.14	.50	.23	.09	.02	9	.12	.10	.17	.09	.05	.44
				Mdn = 2.20			IQR = 1.22								
Reference books	89	6	2	.04	.55	.27	.08	.03	7	.11	.13	.17	.07	.04	.45
				Mdn = 2.31			IQR = 1.15								

DISTRICT 12

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Microfilm or microfiche (microforms)	40	55	25	.90	.08	.01	.00	.00	19	.13	.10	.39	.09	.27	.00
				Mdn = 1.05			IQR = .55								
Repair manuals, job sheets, lists of procedures	76	19	13	.26	.47	.18	.04	.02	12	.20	.16	.13	.03	.13	.32
				Mdn = 1.98			IQR = 1.10								
Programmed or packaged instruction manuals	82	13	7	.31	.29	.13	.09	.15	6	.03	.07	.21	.14	.35	.16
				Mdn = 2.11			IQR = 2.21								
Magnetic Board	51	44	20	.94	.05	.00	.00	.00	13	.41	.13	.15	.04	.13	.10
				Mdn = 1.02			IQR = .52								
Electric Board	29	66	27	.98	.00	.00	.00	.01	18	.37	.19	.18	.03	.15	.05
				Mdn = 1.00			IQR = .50								
Felt or Flannel Board	70	25	14	.93	.04	.00	.00	.01	12	.42	.12	.13	.03	.09	.19
				Mdn = 1.03			IQR = .53								

DISTRICT 12

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Displays	81	14	8	.43	.52	.02	.01	.00	8	.18	.13	.26	.08	.10	.22
				Mdn = 1.61			IQR = 1.02								
Still pictures (opaque projection, bulletin boards, dry-mounted materials)	84	11	7	.25	.70	.03	.01	.00	8	.12	.19	.24	.08	.06	.28
				Mdn = 1.85			IQR = .70								
Models or mock-ups (not including "real-life" equipment)	70	25	9	.43	.48	.06	.01	.00	14	.14	.17	.20	.09	.17	.19
				Mdn = 1.64			IQR = 1.07								
Actual Equipment and/or materials used in the field	78	17	10	.15	.29	.21	.20	.14	14	.08	.08	.19	.08	.20	.33
				Mdn = 2.75			IQR = 2.12								

DISTRICT 12

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Learning games	61	34	18	.66	.29	.03	.00	.00	17	.30	.11	.19	.11	.17	.08
				Mdn = 1.25			IQR = .91								
Simulation exercises	56	39	20	.44	.40	.09	.02	.04	20	.17	.12	.25	.13	.18	.13
				Mdn = 1.65			IQR = 1.20								
Specimen (need not be scientific)	46	49	24	.49	.36	.08	.04	.01	30	.30	.21	.18	.09	.06	.13
				Mdn = 1.51			IQR = 1.19								
Film catalogs	81	14	14	.34	.58	.06	.00	.01	20	.24	.18	.10	.09	.06	.30
				Mdn = 1.76			IQR = .97								
Card catalog	76	19	18	.45	.49	.05	.00	.00	21	.25	.17	.16	.05	.02	.32
				Mdn = 1.59			IQR = 1.04								
Periodical Index	72	23	19	.44	.51	.03	.00	.00	24	.23	.15	.16	.05	.01	.36
				Mdn = 1.60			IQR = 1.03								
ERIC	25	70	43	.94	.05	.00	.00	.00	43	.23	.21	.19	.11	.15	.09
				Mdn = 1.03			IQR = .53								

DISTRICT 3

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0%	1-25%	26-50%	51-75%	76-100%	No. Omitted	None		Moderate		High	Already Proficient
				1	2	3	4	5		1	2	3	4	5	6
Overhead Transparencies	20	1	0	.09	.57	.04	.28	.00	4	.00	.05	.29	.17	.05	.41
				Mdn = 2.20 IQR = 1.85											
Filmstrips	18	2	1	.157	.789	.000	.052	.000	1	.368	.000	.315	.000	.000	.315
				Mdn = 1.933 IQR = 0.633											
2" x 2" Slides	16	5	3	.33	.50	.11	.05	.00	4	.11	.00	.29	.11	.17	.29
				Mdn = 1.83 IQR = 1.08											
8mm or Super 8mm film	13	7	3	.529	.411	.058	.000	.000	3	.294	.058	.352	.058	.176	.058
				Mdn = 1.444 IQR = 1.063											
16mm Sound film	20	1	0	.19	.76	.00	.04	.00	4	.17	.00	.17	.05	.17	.41
				Mdn = 1.90 IQR = .65											
Recorded disc (records)	17	3	4	.500	.500	.000	.000	.000	2	.388	.055	.277	.055	.000	.222
				Mdn = 1.500 IQR = 1.000											

DISTRICT 3

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Audio-tape recording (cassette or reel to reel)	15	6	3	.50	.44	.05	.00	.00	5	.18	.00	.25	.06	.12	.37
				Mdn = 2.06 IQR = 1.06											
Video-tape recording (tv)	7	13	6	1.000	.000	.000	.000	.000	3	.176	.000	.235	.176	.352	.058
				Mdn = 1.000 IQR = .500											
Slide tape series	15	6	4	.52	.35	.11	.00	.00	5	.06	.18	.18	.12	.18	.25
				Mdn = 1.44 IQR = 1.15											
Sound-filmstrips series (filmstrips & audio-tape or record)	15	5	4	.437	.562	.000	.000	.000	2	.222	.000	.444	.000	.222	.111
				Mdn = 1.611 IQR = .984											
Multi-media presentations (3 or more)	11	10	4	.64	.23	.05	.00	.05	7	.21	.07	.07	.21	.35	.07
				Mdn = 1.27 IQR = 1.05											

DISTRICT 3

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Auto-tutorial systems (teaching machines or A-T labs)	7	13	5	.866	.066	.000	.000	.066	4	.250	.062	.312	.000	.250	.125
				Mdn = 1.076 IQR = .576											
Computer assisted instruction	5	16	5	.93	.06	.00	.00	.00	7	.35	.00	.21	.00	.35	.07
				Mdn = 1.03 IQR = .53											
Printed texts	17	3	4	.187	.312	.125	.312	.062	3	.176	.058	.411	.058	.000	.294
				Mdn = 2.500 IQR = 2.200											
Periodical publications	16	5	2	.31	.42	.26	.00	.00	5	.18	.18	.18	.06	.12	.29
				Mdn = 1.93 IQR = 1.25											
Reference books	17	3	2	.055	.555	.111	.166	.111	1	.157	.052	.368	.105	.000	.315
				Mdn = 2.300 IQR = 1.816											

DISTRICT 3

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Microfilm or microfiche (microforms)	10	11	5	.81	.18	.00	.00	.00	7	.35	.00	.14	.07	.28	.14
				Mdn = 1.11 IQR = .61											
Repair manuals, job sheets, lists of procedures	15	5	2	.222	.500	.111	.111	.055	2	.277	.055	.166	.111	.222	.166
				Mdn = 2.055 IQR = 1.194											
Programmed or packaged instruction manuals	17	4	4	.47	.41	.11	.00	.00	5	.12	.12	.06	.12	.31	.25
				Mdn = 1.57 IQR = 1.14											
Magnetic Board	12	8	5	.933	.066	.000	.000	.000	3	.411	.176	.235	.000	.058	.117
				Mdn = 1.035 IQR = .535											
Electric Board	7	14	7	.92	.00	.07	.00	.00	8	.53	.00	.23	.00	.23	.00
				Mdn = 1.03 IQR = .53											
Felt or Flannel Board	13	7	4	.937	.062	.000	.000	.000	2	.444	.222	.222	.000	.000	.111
				Mdn = 1.033 IQR = .533											

DISTRICT 3

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Displays	16	5	3	.27	.61	.11	.00	.00	5	.18	.06	.37	.12	.12	.12
				Mdn = 1.86 IQR = .87											
Still pictures (opaque projection, bulletin boards, dry-mounted materials)	17	3	2	.111	.611	.166	.111	.000	1	.210	.052	.210	.105	.157	.263
				Mdn = 2.136 IQR = .939											
Models or mock-ups (not including "real-life" equipment)	14	7	3	.33	.66	.00	.00	.00	5	.25	.06	.37	.06	.12	.12
				Mdn = 1.75 IQR = .87											
Actual Equipment and/or materials used in the field	17	3	4	.125	.500	.187	.125	.062	3	.117	.000	.235	.176	.235	.235
				Mdn = 2.250 IQR = 1.416											

DISTRICT 3

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Learning games	10	11	5	.62	.37	.00	.00	.00	7	.21	.07	.21	.28	.21	.00
				Mdn = 1.30 IQR = .93											
Simulation exercises	12	8	7	.384	.384	.076	.000	.153	6	.142	.142	.285	.071	.285	.071
				Mdn = 1.800 IQR = 1.299											
Specimen (need not be scientific)	10	11	4	.41	.35	.23	.00	.00	6	.40	.13	.13	.06	.06	.20
				Mdn = 1.75 IQR = 1.35											
Film catalogs	15	5	3	.411	.588	.000	.000	.000	3	.235	.176	.235	.058	.176	.117
				Mdn = 1.650 IQR =.967											
Card catalog	15	6	4	.41	.52	.05	.00	.00	6	.53	.00	.00	.06	.13	.26
				Mdn = 1.66 IQR = 1.03											
Periodical Index	10	10	6	.500	.428	.071	.000	.000	4	.312	.000	.375	.000	.125	.187
				Mdn = 1.500 IQR = 1.083											
ERIC	13	8	5	.81	.18	.00	.00	.00	7	.21	.07	.28	.07	.28	.07
				Mdn = 1.11 IQR = .61											

DISTRICT 6

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Overhead Transparencies	28	1	1	.07	.67	.14	.07	.03	2	.18	.11	.22	.00	.07	.40
				Mdn = 2.13 IQR = 0.73											
Filmstrips	43	7	3	.255	.659	.042	.042	.000	6	.250	.136	.250	.045	.022	.295
				Mdn = 1.870 IQR = 0.770											
2" x 2" Slides	23	6	4	.48	.44	.08	.00	.00	6	.26	.17	.26	.00	.04	.26
				Mdn = 1.54 IQR = 1.09											
8mm or Super 8mm film	38	12	11	.538	.435	.000	.025	.000	11	.282	.076	.282	.025	.153	.179
				Mdn = 1.428 IQR = 1.021											
16mm Sound film	27	2	1	.03	.85	.00	.03	.07	2	18	.11	.18	.00	.03	.48
				Mdn = 2.04 IQR = .58											
Recorded disc (records)	40	10	7	.627	.302	.046	.023	.000	9	.390	.146	.146	.024	.024	.268
				Mdn - 1.296 IQR = 1.005											

DISTRICT 6

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Audio-tape recording (cassette or reel to reel)	24	5	3	.46	.38	.11	.00	.03	2	.14	.03	.33	.03	.11	.33
				Mdn = 1.60 IQR = 1.20											
Video-tape recording (tv)	42	8	7	.348	.558	.069	.023	.000	4	.152	.086	.304	.108	.282	.065
				Mdn = 1.770 IQR = 1.002											
Slide tape series	20	9	4	.64	.32	.04	.00	.00	4	.16	.12	.32	.04	.24	.12
				Mdn = 1.28 IQR = .95											
Sound-filmstrips series (filmstrips & audiotape or record)	42	8	5	.355	.555	.044	.044	.000	8	.261	.119	.190	.071	.119	.238
				Mdn = 1.760 IQR = 1.006											
Multi-media presentations (3 or more)	12	17	9	.80	.15	.05	.00	.00	7	.27	.04	.27	.09	.22	.09
				Mdn = 1.12 IQR = .62											

DISTRICT 6

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Auto-tutorial systems (teaching machines or A-T labs)	28	22	12	.815	.105	.052	.026	.000	11	.230	.230	.230	.076	.205	.025
				Mdn - 1.112 IQR = .612											
Computer assisted instruction	13	16	9	.90	.10	.00	.00	.00	7	.18	.00	.18	.09	.54	.00
				Mdn = 1.05 IQR = .55											
Printed texts	43	7	6	.022	.159	.500	.204	.113	8	.142	.071	.285	.023	.190	.285
				Mdn = 3.136 IQR = 1.196											
Periodical publications	27	2	3	.07	.73	.11	.03	.03	3	.19	.23	.23	.00	.00	.34
				Mdn = 2.07 IQR = .68											
Reference books	44	6	4	.021	.630	.195	.108	.043	7	.162	.116	.209	.069	.209	.232
				Mdn = 2.258 IQR = 1.137											

DISTRICT 6

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Microfilm or microfiche (microforms)	17	12	7	.86	.13	.00	.00	.00	6	.34	.17	.21	.04	.13	.08
				Mdn = 1.07 IQR = .57											
Repair manuals, job sheets, lists of procedures	37	13	8	.333	.333	.142	.190	.000	8	.214	.142	.285	.023	.190	.142
				Mdn = 2.000 IQR = 1.833											
Programmed or packaged instruction manuals	22	7	5	.58	.29	.08	.04	.00	5	.12	.16	.16	.12	.25	.16
				Mdn - 1.35 IQR = 1.14											
Magnetic Board	35	15	9	.804	.170	.000	.024	.000	11	.538	.179	.153	.000	.025	.102
				Mdn - 1.121 IQR = .621											
Electric Board	6	23	11	.94	.00	.00	.00	.05	10	.47	.10	.10	.05	.15	.10
				Mdn = 1.02 IQR = .52											
Felt or Flannel Board	39	11	5	.888	.044	.044	.022	.000	8	.571	.166	.166	.000	.023	.071
				Mdn = 1.062 IQR = .562											

DISTRICT 6

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Displays	23	6	4	.60	.28	.08	.00	.04	6	.39	.13	.17	.04	.08	.17
				Mdn = 1.33 IQR = 1.11											
Still pictures (opaque projection, bulletin boards, dry-mounted materials)	42	7	4	.152	.630	.130	.065	.021	6	.204	.181	.272	.045	.113	.181
				Mdn = 2.051 IQR = .793											
Models or mock-ups (not including "real-life" equipment)	21	8	6	.47	.43	.08	.00	.00	7	.31	.13	.22	.00	.13	.18
				Mdn = 1.55 IQR = 1.10											
Actual Equipment and/or materials used in the field	39	11	9	.073	.365	.219	.243	.097	10	.100	.100	.275	.025	.325	.175
				Mdn = 2.777 IQR = 1.891											

DISTRICT 6

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Learning games	19	10	4	.68	.28	.00	.04	.00	3	.38	.03	.03	.03	.38	.11
				Mdn = 1.23 IQR = .88											
Simulation exercises	28	22	16	.294	.411	.176	.117	.000	14	.083	.166	.250	.083	.305	.111
				Mdn = 2.000 IQR = 1.400											
Specimen (need not be scientific)	15	14	11	.50	.44	.05	.00	.00	12	.58	.11	.11	.00	.05	.11
				Mdn = 1.50 IQR = 1.06											
Film catalogs	36	14	13	.432	.432	.081	.054	.000	11	.333	.153	.128	.051	.153	.179
				Mdn = 1.656 IQR = 1.156											
Card catalog	21	8	7	.50	.27	.13	.09	.00	7	.36	.13	.13	.09	.04	.22
				Mdn = 1.50 IQR = 1.41											
Periodical Index	31	19	15	.514	.371	.085	.028	.000	13	.297	.162	.135	.081	.081	.243
				Mdn = 1.472 IQR = 1.148											
ERIC	14	15	12	.82	.17	.00	.00	.00	8	.47	.19	.09	.04	.04	.14
				Mdn = 1.10 IQR = .60											

DISTRICT 16

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Overhead Transparencies	14	1	2	.30	.46	.15	.07	.00	3	.00	.08	.41	.00	.00	.50
				Mdn = 1.91 IQR = 1.14											
Filmstrips	5	0	0	.200	.800	.000	.000	.000	0	.200	.200	.200	.000	.000	.400
				Mdn = 1.875 IQR = .625											
2" x 2" Slides	9	6	4	.54	.45	.00	.00	.00	4	.09	.09	.45	.00	.00	.36
				Mdn = 1.41 IQR = .99											
8mm or Super 8mm film	5	0	0	.400	.600	.000	.000	.000	0	.000	.000	.600	.000	.000	.400
				Mdn = 1.666 IQR = .958											
16 mm Sound film	11	4	2	.23	.76	.00	.00	.00	3	.25	.00	.33	.08	.00	.33
				Mdn = 1.85 IQR = .65											
Recorded disc (records)	5	0	0	.800	.200	.000	.000	.000	0	.200	.000	.000	.400	.000	.400
				Mdn = 1.125 IQR = .625											

DISTRICT 16

MEDIA	ACQUAINTANCE		UTILIZATION							INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5		No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Audio-tape recording (cassette or reel to reel)	14	1	4	.50	.33	.08	.00	.08	Mdn = 1.50 IQR = 1.25	3	.16	.08	.25	.00	.06	.33
Video-tape recording (tv)	3	2	1	.250	.750	.000	.000	.000	Mdn = 1.833 IQR = .666	1	.000	.000	.250	.500	.000	.250 IQR = 1.000
Slide tape series	8	7	5	.70	.30	.00	.00	.00	Mdn = 1.21 IQR = .80	5	.00	.30.	.30	.00	.10	.30
Sound-filmstrips series (filmstrips & audio-tape or record)	3	2	1	.000	.000	.000	.000	.000	Mdn = 2.000 IQR = .500	1	.250	.000	.250	.000	.000	.50
Multi-media presentations (3 or more)	7	8	4	1.00	.00	.00	.00	.00	Mdn = 1.00 IQR = .50	4	.09	.09	.63	.09	.00	.10

DISTRICT 16

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Auto-tutorial systems (teaching machines or A-T labs)	1	4	0	.800	.200	.000	.000	.000	0	.400	.200	.200	.200	.000	.000
				Mdn = 1.125 IQR = .625											
Computer assisted instruction	5	10	4	1.00	.00	.00	.00	.00	4	.09	.00	.45	.00	.36	.09
				Mdn = 1.00 IQR = .50											
Printed texts	5	0	0	.000	.200	.400	.000	.400	1	.250	.000	.000	.250	.250	.250
				Mdn = 3.250 IQR = 2.250											
Periodical publications	11	4	2	.15	.84	.00	.00	.00	3	.08	.16	.41	.00	.08	.25
				Mdn = 1.90 IQR = .59											
Reference books	5	0	0	.200	.400	.200	.200	.000	0	.200	.000	.200	.000	.200	.400
				Mdn = 2.250 IQR 1.625											

DISTRICT 16

MEDIA	ACQUAINTANCE		UTILIZATION							INTEREST IN STUDYING					
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5		No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Microfilm or microfiche (microforms)	9	6	4	.81	.18	.00	.00	.00		5	.10	.20	.50	.00	.00	.20
				Mdn = 1.11 IQR = .61												
Repair manuals, job sheets, lists of procedures	4	1	0	.800	.000	.200	.000	.000		0	.400	.200	.000	.200	.000	.200
				Mdn = 1.125 IQR = .625												
Programmed or packaged instruction manuals	10	5	3	.75	.16	.00	.08	.00		3	.08	.25	.25	.00	.25	.16
				Mdn = 1.16 IQR = .66												
Magnetic Board	3	2	0	1.000	.000	.000	.000	.000		1	.500	.000	.250	.250	.000	.000
				Mdn = 1.000 IQR = .500												
Electric Board	3	12	5	1.00	.00	.00	.00	.00		6	.33	.11	.44	.00	.00	.11
				Mdn = 1.00 IQR = .50												
Felt or Flannel Board	3	2	0	1.000	.000	.000	.000	.000		1	.500	.000	.250	.250	.000	.000
				Mdn = 1.000 IQR = .500												

DISTRICT 16

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0%	1-25%	26-50%	51-75%	76-100%	No. Omitted	None		Moderate		High	Already Proficient
				1	2	3	4	5		1	2	3	4	5	6
Displays	10	5	3	.41	.50	.08	.00	.00	4	.27	.27	.27	.00	.09	.09
				Mdn = 1.66 IQR = 1.06											
Still pictures (opaque projection, bulletin boards, dry-mounted materials)	5	0	1	.500	.250	.250	.000	.000	0	.200	.200	.200	.200	.000	.200
				Mdn = 1.500 IQR = 1.500											
Models or mock-ups (not including "Real-life" equipment)	7	8	5	.70	.20	.00	.10	.00	6	.22	.22	.22	.00	.11	.22
				Mdn = 1.21 IQR = .89											
Actual Equipment and/or materials used in the field	4	1	0	.200	.200	.200	.200	.200	0	.000	.000	.200	.400	.000	.400
				Mdn = 3.000 IQR = 2.500											

DISTRICT 16

MEDIA	ACQUAINTANCE		UTILIZATION						INTEREST IN STUDYING						
	Acquainted	Not Acquainted	No. Omitted	0% 1	1-25% 2	26-50% 3	51-75% 4	76-100% 5	No. Omitted	None 1	2	Moderate 3	4	High 5	Already Proficient 6
Learning games	8	7	3	.83	.16	.00	.00	.00	3	.08	.16	.33	.00	.25	.16
				Mdn = 1.10 IQR = .60											
Simulation exercises	3	2	1	.500	.250	.250	.000	.000	1	.250	.000	.250	.250	.250	.000
				Mdn = 1.500 IQR = 1.500											
Specimen (need not be scientific)	7	8	4	.54	.36	.00	.09	.00	7	.37	.00	.37	.00	.00	.25
				Mdn = 1.41 IQR = 1.10											
Film catalogs	5	0	1	.500	.250	.250	.000	.000	0	.200	.400	.000	.000	.000	.400
				Mdn = 1.500 IQR = 1.500											
Card catalog	9	6	4	.81	.18	.00	.00	.00	4	.18	.09	.36	.00	.00	.36
				Mdn = 1.11 IQR = .61											
Periodical Index	5	0	1	.750	.250	.000	.000	.000	0	.200	.600	.000	.000	.000	.200
				Mdn = 1.166 IQR = .666											
ERIC	12	3	2	.92	.07	.00	.00	.00	3	.16	.16	.41	.00	.08	.16
				Mdn = 1.04 IQR = .54											

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 12 Factors	Greatly Inhibits	Inhibits	No Influence	Encourages	Greatly Encourages
	1	2	3	4	5
Equipment working when you need to use it	.14	.26	.27	.15	.16
	Mdn = 2.84 IQR = 2.04				
Amount of Software (films, slides etc.) available for your courses	.18	.25	.09	.23	.22
	Mdn = 3.16 IQR = 2.64				
Decentralization of software (located near your classroom)	.08	.10	.26	.15	.38
	Mdn = 3.78 IQR = 2.12				
Centralization of software (located in main office or media center)	.25	.28	.32	.05	.07
	Mdn = 2.38 IQR = 1.65				
Procedures for borrowing or renting software not owned by your district	.21	.30	.35	.06	.05
	Mdn = 2.44 IQR = 1.52				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 12 Factors	Greatly Inhibits	Inhibits	No Influence	Encourages	Greatly Encourages
	1	2	3	4	5
Procedures for purchasing software	.09	.18	.46	.11	.13
	Mdn = 2.97 IQR = 1.22				
The availability of facilities for you to produce software for your courses	.21	.19	.26	.20	.10
	Mdn = 2.81 IQR = 2.17				
Equipment being where you want it when you want it	.26	.29	.20	.07	.16
	Mdn = 2.31 IQR = 1.98				
The speed at which equipment sent out for repair is returned to operation	.23	.26	.29	.08	.12
	Mdn = 2.51 IQR = 1.78				
The dependability of the media production staff on having projects completed on schedule	.26	.27	.22	.10	.12
	Mdn = 2.33 IQR = 1.98				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 12 Factors	Greatly Inhibits	Inhibits	No Influence	Encourages	Greatly Encourages
	1	2	3	4	5
Assistance received from the audio-visual staff in fitting media into your course	.13 Mdn = 3.11 IQR = 2.15	.20	.25	.21	.18
The appropriateness of available media to your class and students	.14 Mdn = 3.05 IQR = 2.58	.25	.18	.16	.25
The appropriateness of classrooms, labs and shops for using media (lighting, electrical outlets, etc.)	.15 Mdn = 2.93 IQR 2.12	.23	.26	.18	.16
The amount of hardware (projectors, screens, etc.) available	.16 Mdn = 2.92 IQR = 2.27	.20	.30	.10	.21
Location of hardware	.16 Mdn = 2.80 IQR = 2.16	.26	.25	.15	.17

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 12

Factors	Greatly Inhibits	Inhibits	No Influence	Encourages	Greatly Encourages
	1	2	3	4	5
Hardware you use most frequently is presently located (check all appropriate locations)					
1: In your department	46				
2: On your floor	27				
3: In your building	41				
4: In a central office	17				
Standardization of equipment (all 16mm projectors are same brand)	.08	.25	.45	.12	.07
	Mdn = 2.84 IQR = 1.25				
Is the equipment presently standardized?	.26 Yes	.73 No			

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 3 Factors	Greatly Inhibits 1	Inhibits 2	No Influence 3	Encourages 4	Greatly Encourages 5
Equipment working when you need to use it	.00	.35	.25	.30	.10
	Mdn = 3.10 IQR = 1.78				
Amount of Software (films, slides etc.) available for your courses	.400	.050	.150	.100	.300
	Mdn = 2.833 IQR = 3.541				
Decentralization of software (located near your classroom)	.05	.10	.26	.26	.31
	Mdn = 3.80 IQR = 1.85				
Centralization of software (located in main office or media center)	.250	.250	.350	.050	.100
	Mdn = 2.500 IQR = 1.714				
Procedures for borrowing or renting software not owned by your district	.10	.25	.40	.20	.05
	Mdn = 2.87 IQR = 1.40				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 3 Factors	Greatly Inhibits 1	Inhibits 2	No Influence 3	Encourages 4	Greatly Encourages 5
Procedures for purchasing software	.052	.315	.368	.105	.157
	Mdn = 2.857 IQR = 1.500				
The availability of facilities for you to produce software for your courses	.20	.20	.25	.15	.20
	Mdn = 2.90 IQR = 2.41				
Equipment being where you want it when you want it	.263	.263	.157	.105	.210
	Mdn = 2.400 IQR = 2.675				
The speed at which equipment sent out for repair is returned to operation	.10	.15	.47	.15	.10
	Mdn = 3.00 IQR = 1.16				
The dependability of the media production staff on having projects completed on schedule	.235	.000	.529	.058	.176
	Mdn = 3.000 IQR = .944				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 3 Factors	Greatly Inhibits 1	Inhibits 2	No Influence 3	Encourages 4	Greatly Encourages 5
Assistance received from the audio-visual staff in fitting media into your course	.25	.15	.30	.15	.15
	Mdn = 2.83 IQR = 2.33				
The appropriateness of available media to your class and students	.368	.157	.052	.105	.315
	Mdn = 2.333 IQR = 3.529				
The appropriateness of classrooms, labs and shops for using media (lighting, electrical outlets, etc.)	.20	.10	.30	.25	.15
	Mdn = 3.16 IQR = 2.10				
The amount of hardware (projectors, screens, etc.) available	.100	.200	.150	.200	.350
	Mdn = 3.750 IQR = 3.535				
Location of hardware	.10	.10	.20	.35	.25
	Mdn = 3.78 IQR = 1.75				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 3 Factors	Greatly Inhibits 1	Inhibits 2	No Influence 3	Encourages 4	Greatly Encourages 5
Hardware you use most frequently is presently located (check all appropriate locations)					
1: In your department	10				
2: On your floor	3				
3: In your building	14				
4: In a central office	6				
Standardization of equipment (all 16mm projectors are same brand)	.055 Mdn = 3.250 IQR = 1.312	.111	.444	.277	.111
Is the equipment presently standardized?	.470 Yes	.529 No			

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 6

Factors	Greatly Inhibits 1	Inhibits 2	No Influence 3	Encourages 4	Greatly Encourages 5
Equipment working when you need to use it	.10	.20	.10	.20	.37
	Mdn = 3.91 IQR = 2.63				
Amount of Software (films, slides etc.) available for your courses	.170	.148	.127	.148	.404
	Mdn = 3.857 IQR = 2.845				
Decentralization of software (located near your classroom)	.06	.24	.06	.31	.31
	Mdn = 3.88 IQR = 2.44				
Centralization of software (located in main office or media center)	.066	.244	.288	.177	.222
	Mdn = 3.153 IQR = 2.093				
Procedures for borrowing or renting software not owned by your district	.24	.08	.56	.00	.12
	Mdn = 2.82 IQR = 1.64				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 6 Factors	Greatly Inhibits 1	Inhibits 2	No Influence 3	Encourages 4	Greatly Encourages 5
Procedures for purchasing software	.152	.195	.369	.108	.173
	Mdn = 2.911 IQR = 1.800				
The availability of facilities for you to produce software for your courses	.10	.20	.17	.20	.31
	Mdn = 3.58 IQR = 2.48				
Equipment being where you want it when you want it	.212	.170	.148	.106	.361
	Mdn = 3.285 IQR = 3.090				
The speed at which equipment sent out for repair is returned to operation	.06	.31	.24	.13	.24
	Mdn = 3.00 IQR = 2.35				
The dependability of the media production staff on having projects completed on schedule	.106	.212	.234	.212	.234
	Mdn = 3.272 IQR = 2.250				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 6

Factors	Greatly Inhibits 1	Inhibits 2	No Influence 3	Encourages 4	Greatly Encourages 5
Assistance received from the audio-visual staff in fitting media into your course	.03	.24	.17	.13	.41
	Mdn = 3.87				
	IQR = 2.50				
The appropriateness of available media to your class and students	.145	.166	.166	.208	.312
	Mdn = 3.600				
	IQR = 2.575				
The appropriateness of classrooms, labs and shops for using media (lighting, electrical outlets, etc.)	.27	.17	.10	.10	.34
	Mdn = 3.00				
	IQR = 3.36				
The amount of hardware (projectors, screens, etc.) available	.000	.106	.255	.170	.468
	Mdn = 4.312				
	IQR = 1.903				
Location of hardware	.17	.20	.17	.17	.27
	Mdn = 3.20				
	IQR = 2.71				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 6 Factors	Greatly Inhibits	Inhibits	No Influence	Encourages	Greatly Encourages
	1	2	3	4	5
Hardware you use most frequently is presently located (check all appropriate locations)					
1: In your department	10				
2: On your floor	17				
3: In your building	8				
4: In a central office	6				
Standardization of equipment (all 16mm projectors are same brand)	.000	.022	.533	.177	.266
	Mdn = 3.395 IQR = 1.635				
Is the equipment presently standardized?	.634 Yes	.365 No			

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 16 Factors	Greatly Inhibits	Inhibits	No Influence	Encourages	Greatly Encourages
	1	2	3	4	5
Equipment working when you need to use it	.07	.30	.23	.15	.23
	Mdn = 3.00 IQR = 2.31				
Amount of Software (films, slides etc.) available for your courses	.200	.000	.400	.200	.200
	Mdn = 3.250 IQR = 1.625				
Decentralization of software (located near your classroom)	.23	.23	.15	.15	.23
	Mdn = 2.75 IQR = 2.79				
Centralization of software (located in main office or media center)	.000	.000	.800	.000	.200
	Mdn = 3.125 IQR = .625				
Procedures for borrowing or renting software not owned by your district	.18	.18	.36	.o8	.09
	Mdn = 2.87 IQR = 1.75				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 16 Factors	Greatly Inhibits 1	Inhibits 2	No Influence 3	Encourages 4	Greatly Encourages 5
Procedures for purchasing software	.200	.000	.600	.000	.200
	Mdn = 3.000 IQR = .833				
The availability of facilities for you to produce software for your courses	.15	.15	.30	.15	.23
	Mdn = 3.12 IQR = 2.25				
Equipment being where you want it when you want it	.000	.000	.000	.600	.400
	Mdn = 4.333 IQR = .958				
The speed at which equipment sent out for repair is returned to operation	.07	.23	.46	.07	.15
	Mdn = 2.91 IQR = 1.20				
The dependability of the media production staff on having projects completed on schedule	.000	.000	.400	.200	.400
	Mdn = 4.000 IQR = 1.750				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 16

Factors	Greatly Inhibits	Inhibits	No Influence	Encourages	Greatly Encourages
	1	2	3	4	5
Assistance received from the audio-visual staff in fitting media into your course	.00	.15	.30	.23	.30
	Mdn = 3.66				
	IQR = 1.87				
The appropriateness of available media to your class and students	.250	.250	.000	.000	.500
	Mdn = 2.500				
	IQR = 3.500				
The appropriateness of classrooms, labs and shops for using media (lighting, electrical outlets, etc.)	.30	.15	.23	.15	.15
	Mdn = 2.66				
	IQR = 2.56				
The amount of hardware (projectors, screens, etc.) available	.000	.000	.200	.400	.400
	Mdn = 4.250				
	IQR = 1.250				
Location of hardware	.00	.27	.27	.09	.36
	Mdn = 3.33				
	IQR = 2.39				

FACTORS WHICH INFLUENCE MEDIA USE

DISTRICT 16 Factors	Greatly Inhibits 1	Inhibits 2	No Influence 3	Encourages 4	Greatly Encourages 5
Hardware you use most frequently is presently located (check all appropriate locations)					
1: In your department	6				
2: On your floor	5				
3: In your building	2				
4: In a central office	8				
Standardization of equipment (all 16mm projectors are same brand)	.000	.000	.800	.000	.200
	Mdn = 3.125 IQR = .625				
Is the equipment presently standardized?	.500 Yes	.500 No			

APPENDIX F

RESULTS OF SYSTEMS "BRAINSTORMING" SESSION

Objectives

Determine Reliability

Determine Validity

Write Objective

Determine Specific Objective

Determine in study units the type of activity needed - cognitive, affective, psycomotor

Determine General Objective

Determine Interim Objective

Check with Experienced Personnel & Past Experiences to Determine Objective

Determine Behvaior Learner Demonstrates to Fulfill Objective

Study student reactions in terms of

- knowledge
- understanding
- application
- analysis

Environment

Personnel Hygiene

Time of Day

Pest Control

Accessibility

Atmosphere (coed)

Morale

Space

Temperature
1. outside
2. inside

Humidity

Dust Control

Janitorial Services

Lighting

Location

Interior Decor

Inter Comm. (music)

Furniture (arrangement)

Water Facilities

Rest Area

Equipment

Noise

Electrical (Available)

Type of Building
1. location

Room
1. size
2. shape
3. storage

Weather

Exposure
(Direction-Orientation)

Presentation

Outline (prepared)

Acquiring audio-visual equipment

Enrolling students

Proper & available facilities

Preparing Material (script) & printed

Orientation

Demonstration

Counseling of Students to account for differences

Type of Media Used (varied types)
- charts
- graphs

Introductions

Personality (teacher's)

Supplies
- blackboard, chalk, extension cords, pencils, etc.

Need for Presentation

Conferences, Seminars

Revision (account for diversification of student ability)

Adequate Equipment

Operable Equipment

Time

Objectives (prepared)

Student Involvement

Pre- and Post- Testing

Evaluation

Organization

Electrical Power

Contracting

Demonstration

Teacher In-Service (Brainstorming)

Media Process

Media Process
cartoons

Media Process
technique of doing

Media Process
constructing

Media Process
coordination

Media Process
filming

Media Process
stapling

Media Process
printing

Media Process
reviewing

Media Process
buying

Media Process
alminated materials

Media Process
chalk board
writing

Media Process
putting materials together

Media Process
collating

Media Process
motion

Media Process
- advertising
- announcements

Media Process
producing slides

Media Process
lettering

Media Process
Mailing

Media Process
flow charts

Media Process
display

Media Process
renting

Media Process
recording tapes
writing scripts

Media Process
drawing

Media Process
organizing
analysising

Media Process
painting

Media Process
sound

Media Process Cont.

Media Process
color

Media Process
games

Media Process
simulation

Media Process
charts

Program Evaluation & Quality Control

Re-evaluate Objectives

Research

Updating

Did student meet objectives?

Obtain Feedback

Evaluate Feedback

Identify Problem Areas

Identify Strong Points

Availability of New Equipment

Consult Experts in the Field

Re-evaluate Media Used

Reviewing Facilities Used

Was adequate time available?

Additional Methods to Meet Objectives

Adjust to Technological Changes

Availability of New Material

Make Additions

Make Deletions

Continual Revision (improvisation)

Determine Approaches of Interested Students

Re-evaluate Standards

Testing

Methods of Correction

Does test meet objectives?

N or C

Review of Exam for Learning Process

Oral Examination (Formal)

Practical Exams

Simulations

Subjective Exams

Objective Exams

Choose Items

Select Methods of Testing

Select Quantity

Determine Time of Test (length)

Place "Environment" of Test

Grading Norms

Cheating Policies

Proctering of Exams

Typing & Duplication

Essay Exams

Self-Tests

On-the-Job Testing (Teacher)

Employer Testing (On-the-Job)

One-on-One Oral Exams

Contract Evaluation

Open or Closed Book Exams

Take Home Exam

Student-to-Student Testing

Validation of Exam

Check for Reliability

Establish a Re-Test Policy

Point Assignment

Item Analysis

Post-Test & Pre-Test Evaluation

Correcting Exams: by teacher, computer, or student

Grade Computation

Testing Cont.

Lab Id.

Testing vs. No Testing

Pass - Fail

Branching
(Sequential Testing)

APPENDIX G

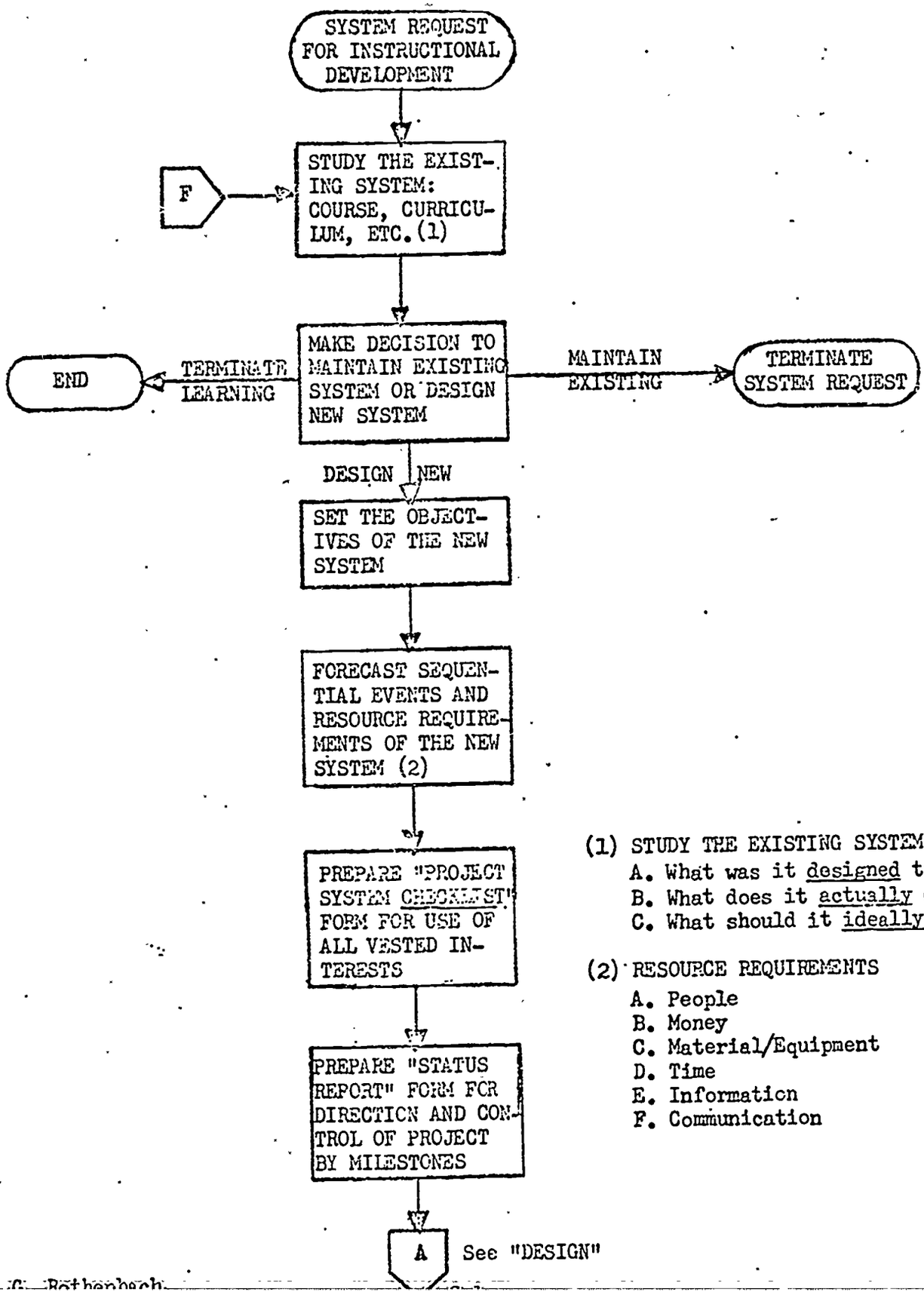
Sample systems flow chart developed

by Mr. George Rothenback, workshop participant,

and revised after workshop

SYSTEM MANAGEMENT FOR INDIVIDUALIZED INSTRUCTIONAL DEVELOPMENT

Milestone 1: PLAN



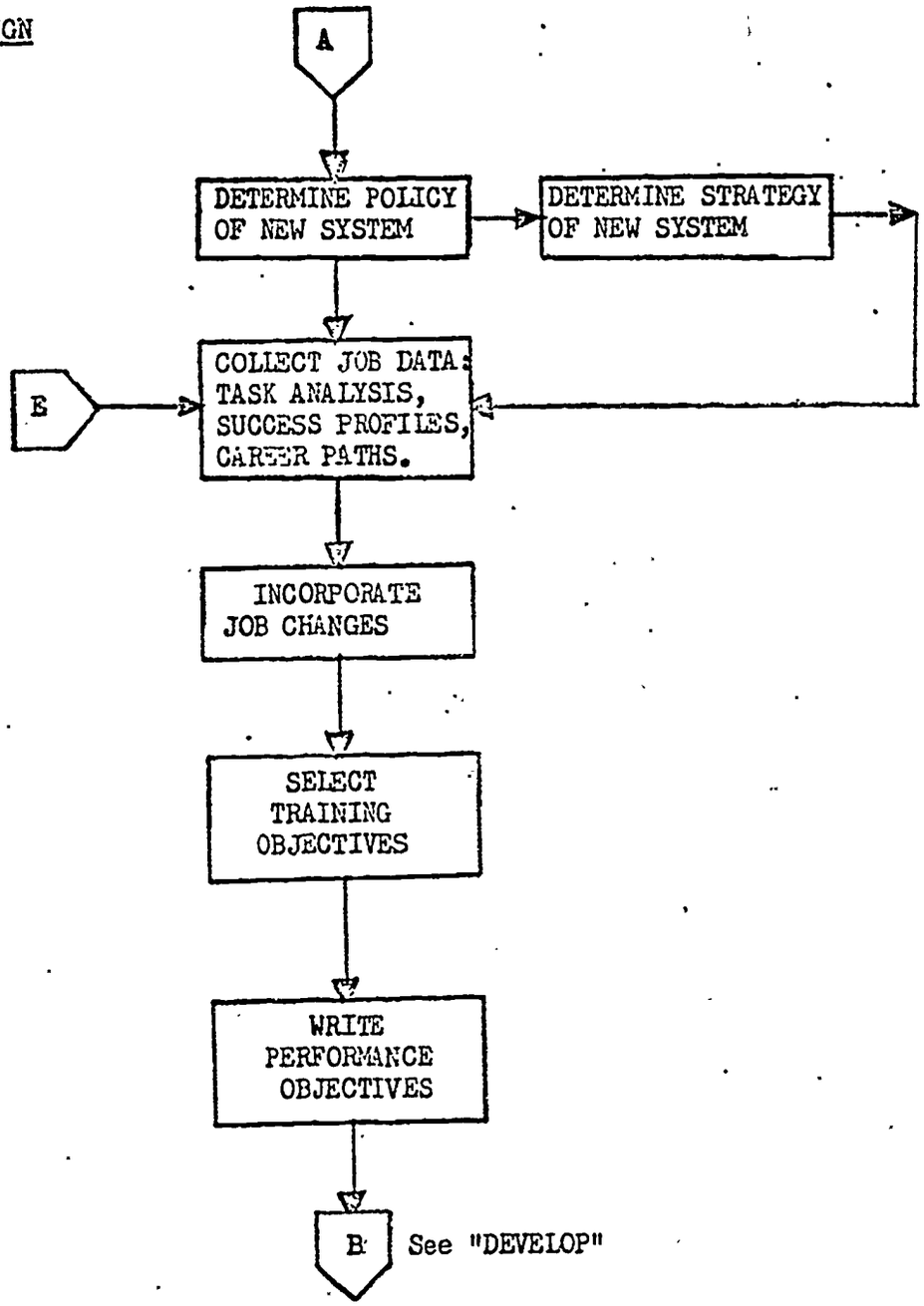
(1) STUDY THE EXISTING SYSTEM
- A. What was it designed to do?
- B. What does it actually do?
- C. What should it ideally do?

(2) RESOURCE REQUIREMENTS
- A. People
- B. Money
- C. Material/Equipment
- D. Time
- E. Information
- F. Communication

G. Rothenbach

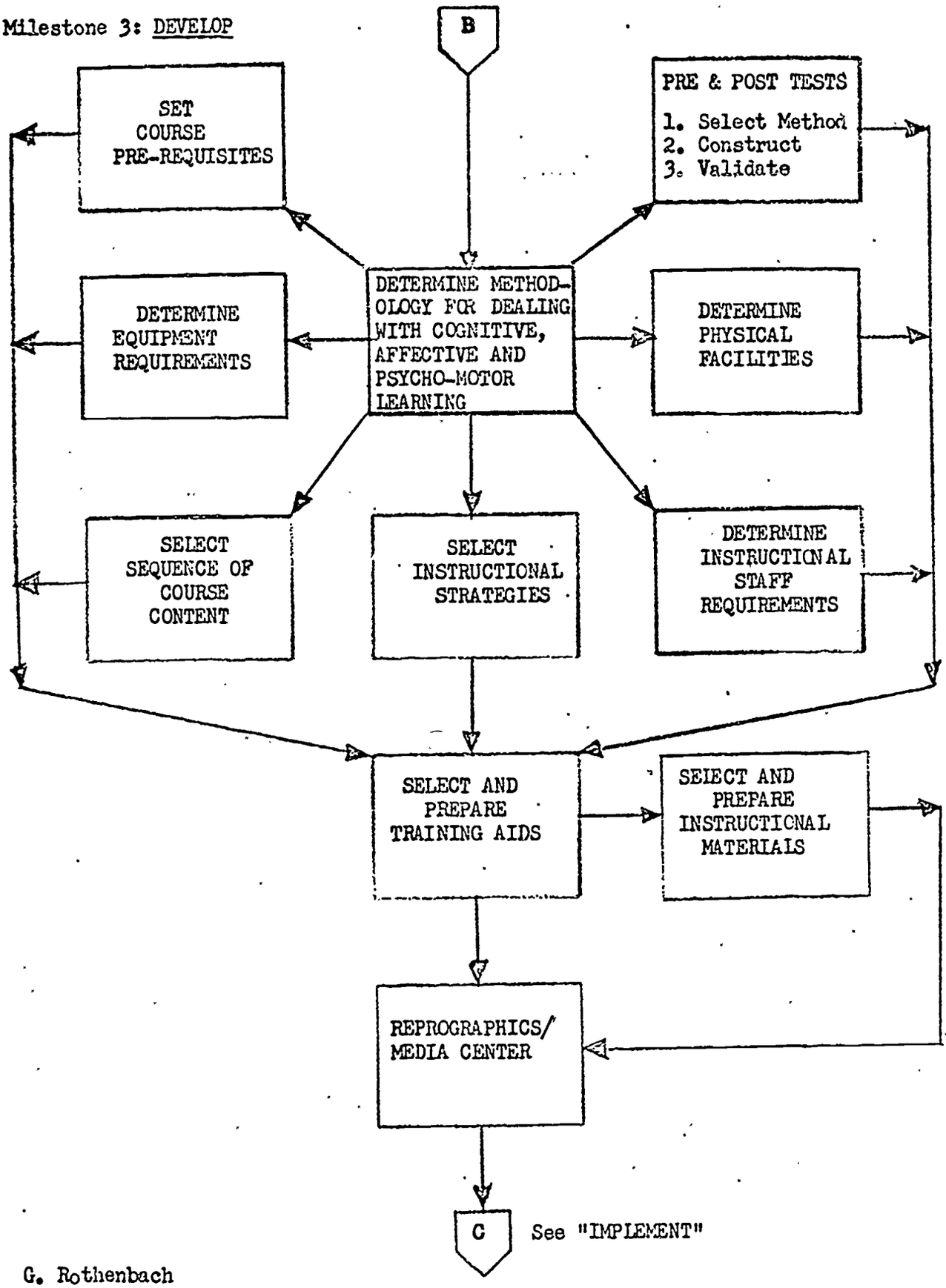
SYSTEM MANAGEMENT FOR INDIVIDUALIZED INSTRUCTIONAL DEVELOPMENT

Milestone 2: DESIGN



SYSTEM MANAGEMENT FOR INDIVIDUALIZED INSTRUCTIONAL DEVELOPMENT

Milestone 3: DEVELOP



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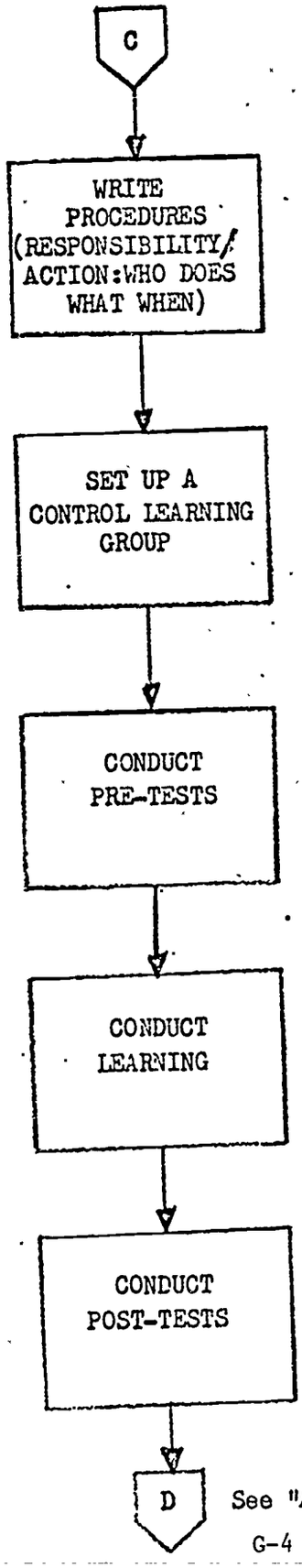
SYSTEM MANAGEMENT FOR INDIVIDUALIZED INSTRUCTIONAL DEVELOPMENT

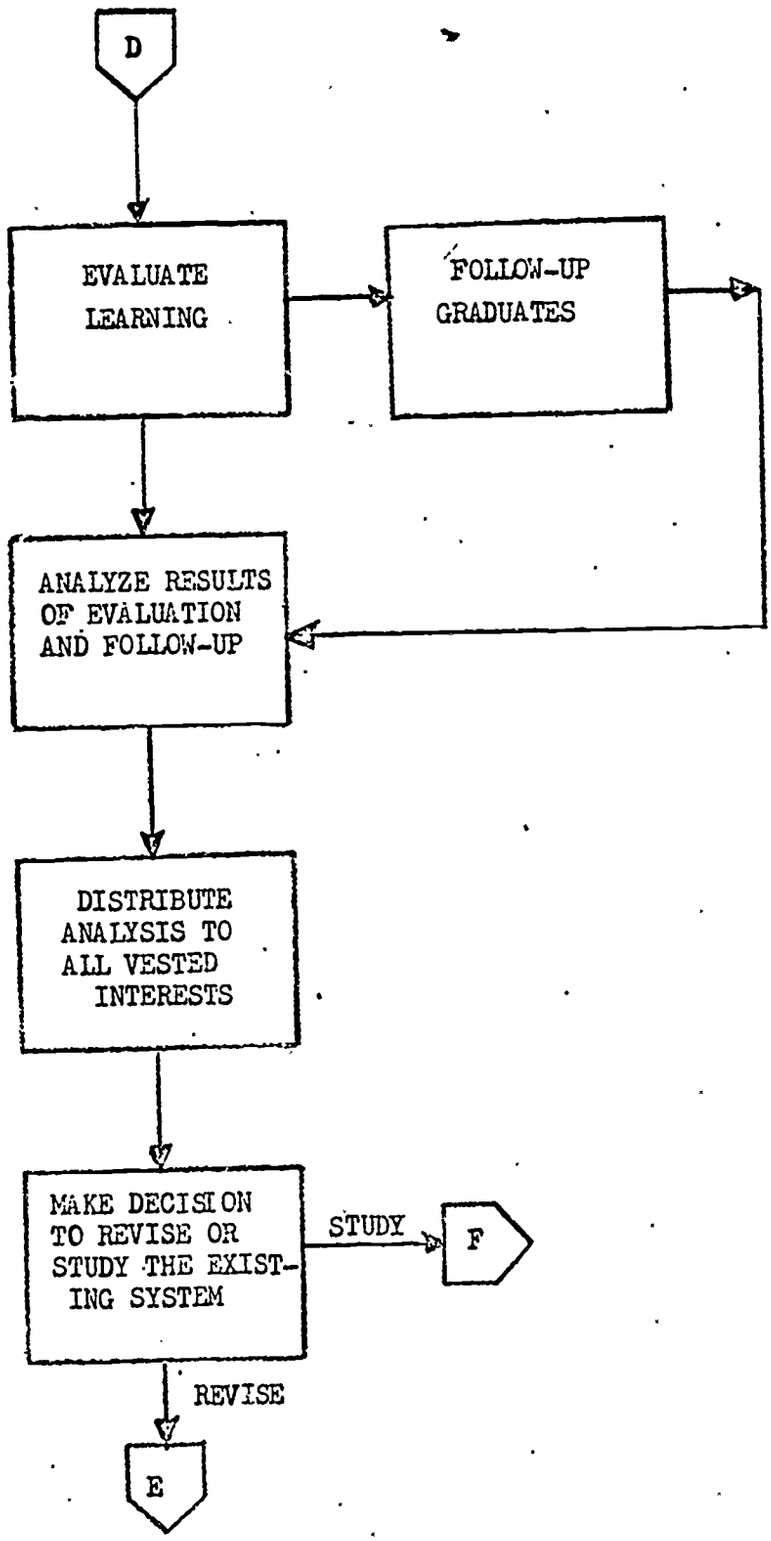
Milestone 4: IMPLEMENT



See "AUDIT"

SYSTEM MANAGEMENT FOR INDIVIDUALIZED INSTRUCTIONAL DEVELOPMENT

Milestone 5: AUDIT



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